

**BEFORE THE NEWFOUNDLAND AND LABRADOR BOARD OF
COMMISSIONERS OF PUBLIC UTILITIES**

**EVIDENCE OF DR. SEAN CLEARY, CFA,
BMO PROFESSOR OF FINANCE**

**SUBMITTED ON BEHALF OF:
THE NEWFOUNDLAND CONSUMER ADVOCATE**

REPORT ON CAPITAL STRUCTURE & RELATED ISSUES

September 25, 2018

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 QUALIFICATIONS.....	1
1.2 PURPOSE OF TESTIMONY.....	1
1.3 SUMMARY OF CAPITAL STRUCTURE RECOMMENDATIONS.....	2
2. ECONOMY OVERVIEW.....	2
2.1 THE CANADIAN ECONOMY.....	3
2.1.1 HISTORICAL EVIDENCE.....	3
2.1.2 GLOBAL ECONOMIC ACTIVITY.....	5
2.1.3 TODAY'S OUTLOOK.....	6
2.1.4 INTEREST RATE LEVELS.....	9
2.2 THE NEWFOUNDLAND AND LABRADOR ECONOMY.....	11
3. CAPITAL STRUCTURE ISSUES	13
3.1 BACKGROUND.....	13
3.2 BUSINESS RISK	15
3.2.1 REGULATORY RISK.....	15
3.2.2 OPERATING ENVIRONMENT.....	16
3.2.3 A QUANTITATIVE ASSESSMENT OF NP's BUSINESS RISK.....	20
3.2.4 CONCLUDING REMARKS REGARDING BUSINESS RISK.....	25
3.3 FINANCIAL RISK.....	25
3.3.1 ALLOWED ROES AND EQUITY RATIOS.....	25
3.3.2 CREDIT METRIC COMPARISONS.....	27
3.3.3 CONCLUDING REMARKS REGARDING FINANCIAL RISK.....	29
3.4 TOTAL RISK ASSESSMENT FOR NP.....	30
3.5 CAPITAL STRUCTURE RECOMMENDATION.....	33
3.5.1 THE COSTS TO CONSUMERS OF MAINTAINING AN ABOVE AVERAGE EQUITY RATIO.....	33
3.5.2 CONCLUSIONS REGARDING CAPITAL STRUCTURE.....	36

1. INTRODUCTION

1.1 Qualifications

This evidence is prepared by Dr. Sean Cleary, CFA of Queen's University. I am currently the Director of the Master of Finance program and the BMO Professor of Finance at the Smith School of Business at Queen's University. I earned my Ph.D. in Finance at the University of Toronto in 1998 and earned my CFA designation in 2001.

I served as an expert witness on behalf of the Newfoundland Consumer Advocate in cost of capital hearings in 2015-2016. I have served in this capacity on several occasions on behalf of the Office of the Utilities Consumer Advocate of Alberta (the "UCA"), including generic cost of capital ("GCOC") proceedings in 2017-18 (Proceeding 22635), 2017 (Proceeding ID 22570), and 2013-2014 (Proceeding ID 2191). I also served on behalf of the UCA in regulated rate option ("RRO") proceedings in 2017-18 (Proceeding 22635), 2017 (Proceeding 22357), and (Proceeding ID 2941) in 2014.

In addition to this consulting work, my research has extensively involved examining corporate finance and cost of capital matters, consisting of 30 publications. My work has been cited close to 3,200 times. Most of this work has dealt directly or indirectly with capital markets, capital structure, and cost of equity issues. I have authored or co-authored 13 finance textbooks, all of which deal with capital markets, capital structure, cost of equity, and cost of capital analysis. I examine capital market conditions and estimate the cost of capital for actual companies on a regular basis, which I use for teaching purposes. In addition, I previously worked as a commercial lender.

My CV is attached as Appendix A to my evidence.

1.2 Purpose of Testimony

The Consumer Advocate of Newfoundland and Labrador has requested that I recommend an appropriate capital structure (i.e., equity ratio) for Newfoundland Power during the 2018 General Rate Application (GRA) proceedings.

1.3 Summary of Capital Structure Recommendations

The Canadian economy is forecast to grow steadily throughout 2019 and 2020, while the Newfoundland and Labrador economy is expected to display flat economic growth during 2018, but positive growth in 2019.

My qualitative analysis confirms that NP continues to be a *low business risk* electric distribution utility operating in a very supportive regulatory environment, similar to the conclusions reached by the Board in previous decisions, and also consistent with the analyses of credit rating agencies of NP. My quantitative analysis provides strong verification of these qualitative conclusions, as NP is shown to display much lower volatility in operating income than the U.S. and Canadian utilities included in Mr. Coyne's proxy groups. As such, I conclude that NP continues to be a very low business risk firm.

My analysis shows that NP has *lower financial risk* than other Canadian utilities based upon a combination of an allowable ROE which is about average, and an equity ratio that is much higher than average – almost 20% higher. Given this attractive ROE to equity ratio combination, as expected, NP displays superior credit metric ratios relative to its Canadian peers. Not surprisingly, my analysis confirms that NP has *low total risk* as reflected in its ability to earn its allowed ROE, and in terms of the variability of its earned ROE.

I do not believe it is necessary for a low risk utility like NP to maintain a 45% equity ratio which is approximately 20% relatively higher than the 38% average and 37% median for Canadian electric distributors, while at the same time being allowed to earn an ROE that is around average. I recommend that the Board reduce the equity ratio to 40%, which would bring it in line with, but still slightly above, Canadian utility averages. The additional "above average" 7-8% equity thickness that NP currently is allowed is not warranted based on NP's business risk, nor is it required to maintain its' credit metrics, which are well above average. I provide an estimate of the cost of maintaining this excessive equity thickness which is borne by NP's customers.

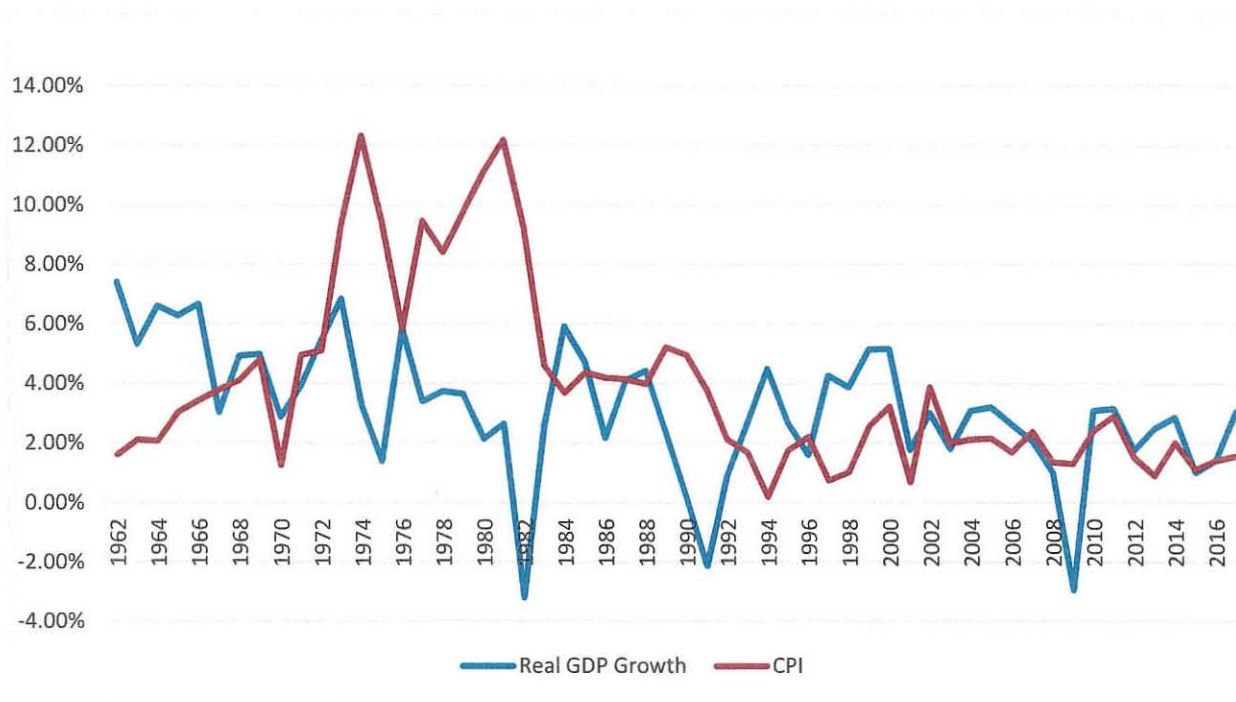
2. ECONOMY OVERVIEW

2.1 The Canadian Economy

2.1.1 Historical Evidence

The figure below shows Canadian real GDP growth (%) and total inflation as measured by the Consumer Price Index (CPI) over the 1962 to 2017 period. The graph shows that real GDP growth has generally been in the 2 to 6 percent range, with the exceptions of the three recessionary periods that occurred in the early 1980s, the early 1990s, and during our most recent financial crisis. Table 1 reports summary statistics that show the average for GDP growth over the entire period was 3.2% (median 3.1%). It is interesting to note that GDP growth declined to an average of 2.5% (median 2.7%) over the 1992 to 2017 period. This represents the period “following” the Bank of Canada’s initiation of a 2% inflation target in 1991, giving a year’s grace period until its implementation had begun to take solid footing. This decline in average growth is accompanied by reduced volatility which is obvious from the figure, and also as measured by the standard deviation reported in Table 1.

FIGURE 1
REAL GDP GROWTH AND CPI – CANADA (1962-2017)



Data Source: Statistics Canada.

TABLE 1
REAL GDP GROWTH AND CPI SUMMARY STATISTICS – CANADA (1962-2017)

	1962-2017 (%)		1992-2017 (%)	
	Real GDP	CPI	Real GDP	CPI
Average	3.16	3.92	2.51	1.80
Median	3.07	2.97	2.67	1.72
Max	7.41	12.33	5.18	3.88
Min	-3.20	0.20	-2.95	0.20
Std Dev.	2.19	3.10	1.63	0.83

Data Source: Statistics Canada.

Figure 1 also reports annual changes in CPI, which averaged 3.9% (median 3.0%) over the entire period. These summary stats are obviously driven by the high rates of inflation during the 1970s and 1980s. Inflation rates have generally been within the Bank of Canada's 1 to 3% target range since the policy's adoption in 1991, being in line with the 2% target as evidenced by the average of 1.8% (median 1.7%). CPI growth has also been very stable during this latter period, which is obvious from the graph, and also by the huge decline in standard deviation from 3.1% to 0.8%. Obviously, forecasting inflation is much easier today than it was in previous years.

2.1.2 Global Economic Activity

The global economy has faced several challenges since 2008, but is expected to grow at a solid pace in 2018 and 2019. For example, Table 2 shows the April 2018 Consensus Economics Inc. Forecasts for average global real GDP growth figures of 3.3% and 3.2% respectively, while the Bank of Canada's July 2018 Monetary Policy Report (MPR)¹ estimates were higher at 3.8% and 3.5%. Table 2 shows that the expected global improvements are based partly on expectations that the U.S. economy will continue to grow steadily over 2018 and 2019 in the 2.5-3.1% range, while the Euro zone will continue to rebound back close to normal growth levels with expected growth rates of 1.6-2.4% for 2018-19.

¹ Source: <https://www.bankofcanada.ca/wp-content/uploads/2018/07/mpr-2018-07-11.pdf>.

TABLE 2

REAL GDP GROWTH GLOBAL FORECASTS (2018-2019)

Real GDP Growth (%)	2018		2019	
	Consensus	Bank of Canada	Consensus	Bank of Canada
World	3.3	3.8	3.2	3.5
U.S.	2.8	3.1	2.6	2.5
Euro Zone	2.4	2.2	1.9	1.6

Source: Consensus Economics Inc. (April 2018) and Bank of Canada MPR (July 2018).

The Bank of Canada notes in its' July 2018 MPR that global growth will remain solid, with trade tensions posing a risk to this outlook through their potential influence on trade and investment. The factors driving growth include the robust U.S. economy and accommodative global financial conditions, despite recent movements by the U.S. in particular to reduce monetary stimulus. The Bank further notes that other economies continue to grow, albeit at a slower pace than the U.S., and with some economies being affected adversely by recent increases in oil prices. They also expect strong growth in emerging market economies, albeit with rising risks in some of them. With respect to China, the Bank stated that "Economic growth is still anticipated to moderate from around 6 1/2 per cent in 2018 to around 6 per cent in 2020, as part of the continued transition to more sustainable growth."

2.1.3 Today's Outlook

The Bank's July 2018 MPR notes that "the Canadian economy continues to operate close to full capacity, and GDP is expected to expand somewhat faster than potential." The Bank expects the contribution from consumer spending to moderate in response to higher interest rates and new mortgage rules, despite support from rising wages and strong employment levels. The Bank notes that there is an ongoing shift from consumer spending to business investment and exports. This growth in investment and exports is occurring despite the risks posed by escalating trade tensions, including ongoing NAFTA negotiations. The growth in investment is supported by the results of the Bank's "Business Outlook Survey – Summer 2018," which reported an increase in the summary BOS Indicator to near record highs, reflecting business

optimism.² Economic growth is being supported by accommodative monetary conditions and foreign demand, while oil price increases have helped some industries and jurisdictions. However, trade policy uncertainty and tariffs have served to dampen this potential growth.

Taking all of these factors into consideration the Bank forecast real GDP growth of 2.0% in 2018, 2.2% in 2019 and 1.9% in 2020. Table 3 shows that the 2018 and 2019 forecasts are in line with the April 2018 Consensus Economics' forecasts (2.0% and 1.9%), and with those of the IMF (2.3% and 2.0%) and the OECD (2.2% and 2.0%).

TABLE 3
REAL GDP GROWTH FORECASTS – CANADA (2018-2019)

Conf. Board of Canada	1.9	2.2
CIBC World Markets	2.1	1.6
IHS Markit	2.4	2.3
Citigroup	2.1	2.1
BMO Capital Markets	2.0	1.8
Desjardins	2.1	1.9
Econ Intell Unit	2.0	1.7
EconoMap	2.1	1.9
Oxford Economics	1.8	2.1
JP Morgan	1.9	1.7
National Bank	2.5	1.8
RBC	1.9	1.6
TD Bank	2.0	1.9
University of Toronto	1.6	2.1
Scotia Econ	2.2	2.1
Informetrica	2.2	1.8
Stokes Econ Consulting	2.3	2.0
Inst Fiscal Studies	1.9	1.8
Capital Economics	1.5	1.3
Average	2.0	1.9
Median	2.1	1.9
Max	2.5	2.3
Min	1.5	1.3
IMF (Jan 18)	2.3	2.0
OECD (Mar 18)	2.2	2.0
Bank of Canada (July 2018)	2.0	2.2

² Source: Bank of Canada "Business Outlook Survey": <https://www.bankofcanada.ca/2018/06/business-outlook-survey-summer-2018/>.

Source: Consensus Economics Inc. (April 2018) and Bank of Canada MPR (July 2018).

The Bank notes that “labour market conditions remain healthy, but growth of employment and average hours worked has slowed from last year’s strong pace (Chart 7). Likewise, after declining notably in 2017, the unemployment rate to date this year has remained relatively steady, near its 40-year low.” Further, they note that core inflation remained close to 2%, “consistent with an economy operating near potential.” They forecast that total CPI inflation would hit 2.5% in the last two quarters of 2018 reflecting the impact of “higher gasoline prices in recent months, the impact of minimum wage increases, newly imposed tariffs and exchange rate pass-through.” Based on the discussion above, the Bank predicts inflation rates of 2.4% in 2018, 2.2% in 2019, and 2.1% in 2020, all within range of its target rate. The Bank’s total inflation projections for 2018 were slightly above, but in line with the Consensus Economics’ forecasts of 2.2% and 2.0%, as well as with those of the IMF and OECD, all of which can also be found in Table 4.

TABLE 4
CPI FORECASTS – CANADA (2018-2019)

<u>CPI Forecast</u>	<u>2018</u>	<u>2019</u>
Conf. Board of Canada	2.0	1.9
CIBC World Markets	2.4	2.0
IHS Markit	2.1	2.0
Citigroup	2.1	2.0
BMO Capital Markets	2.2	2.1
Desjardins	2.4	2.0
Econ Intell Unit	1.9	1.8
EconoMap	2.2	2.1
Oxford Economics	2.2	2.0
JP Morgan	2.1	2.0
National Bank	2.3	2.1
RBC	2.6	1.9
TD Bank	2.3	2.0
University of Toronto	2.5	2.1
Scotia Economics	2.2	2.3
Informetrica	2.1	2.1
Stokes Econ Consulting	1.9	2.0
Inst Fiscal Studies	2.1	1.9
Capital Economics	2.3	1.5

Average	2.2	2.0
Median	2.2	2.0
Max	2.6	2.3
Min	1.9	1.5
IMF (Jan 18)	2.3	2.0
OECD (Mar 18)	2.2	2.0
Bank of Canada (July 2018)	2.4	2.2

Source: Consensus Economics Inc. (April 2018) and Bank of Canada MPR (July 2018).

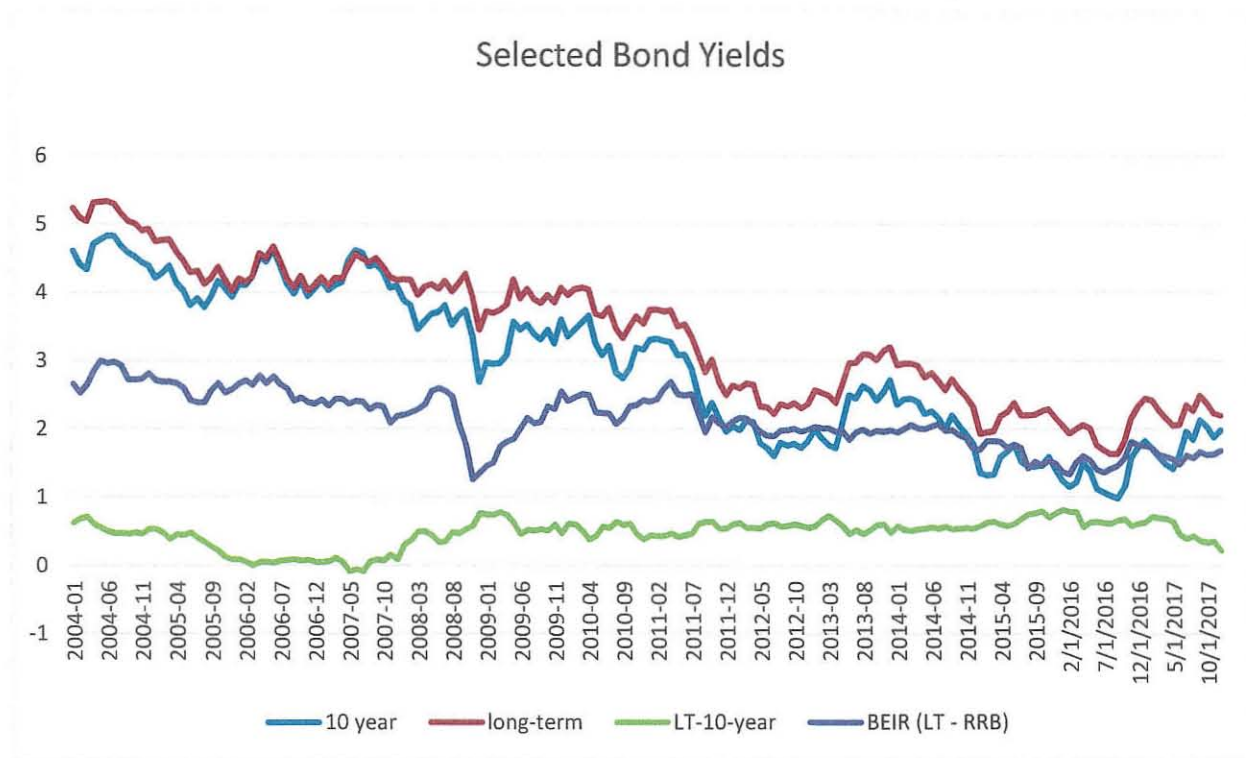
The Bank states that “The ongoing shift toward protectionist global trade policies remains the most important source of uncertainty surrounding the outlook.” The associated risk can affect not only investment and exports, but also global economic health and consumer spending from those working in affected industries. Noting this, the Bank identified the following key risks that could impact its’ inflation forecasts: (a) weaker Canadian investment and exports; (b) sharp tightening of global financial conditions; (c) stronger real GDP growth in the United States; (d) stronger consumption and rising household debt in Canada; and, (e) a pronounced decline in house prices in overheated markets in Canada.

2.1.4 Interest Rate Levels

Interest rates in Canada have remained low over the past decade. Figure 2 shows 10-year and long-term bond yields in Canada over the last 14 years, which have moved in tandem for the most part, with a correlation coefficient of 0.99 over the period. The graph also shows the spread between the two rates, which had an average (median) of 0.47% (0.53%) over the entire period. It is obvious from the graph that this spread increased during the last half of 2015, finally hitting a high of 0.81% in January of 2016. This spread declined steadily throughout 2017, hitting 0.22% in December 2017.³ The graph also shows the break-even inflation rate (BEIR), which is the difference between the yield on long-term Canada bonds and the yield on Canadian Real Return Bonds. The BEIR can be viewed as an indicator of future inflation rates. This rate remained within the Bank’s target band for inflation over the entire period, peaking at 3.0% in 2004, hitting a trough of 1.26% in November of 2008 around the peak of the crisis, and averaging 2.1% overall, slightly above the Bank’s target. It sat at 1.68% at the end of 2017.

³ This spread continued to decline through 2018 and sat at 0.02% as of September 12, 2018.

FIGURE 2
SELECTED BOND YIELDS – CANADA (2004-2017)



Data Source: Bank of Canada website at <http://www.bankofcanada.ca>.

The view today is that bond yields will increase slowly in the coming months; although this is far from a given. This seems to be the consensus view of most economists in April of 2018, as can be seen in Table 5. The April 2018 Consensus Economics' Forecast for 10-year Canada bond yields was 2.7% for the end of April 2019 – up from the September 12, 2018 level of 2.32%. I say that such an increase is “far from a given” based on the fact that the Consensus Economics' forecasts for 10-year yields have consistently been well above the subsequent resulting actual 10-year yields since 2011, over-estimating the yield by more than 2% for 2012 and 2015, and by more than 3% for 2016. Finally, it is worth noting that as of September 12, 2018 the spread between 10-year Canada yields of 2.32% and 30-year Canada yields of 2.34% was a mere 0.02%, well below the long-term average spread between the two rates of 0.5% noted previously.

TABLE 5
10-YEAR YIELD FORECASTS – CANADA (2018-19)

10-Year Canada		
Yields	July-18	April-19
Conf. Board of Canada	2.4	2.7
CIBC World Markets	2.4	2.4
IHS Markit	NA	NA
Citigroup	2.3	2.8
BMO Capital Markets	2.3	2.7
Desjardins	2.4	2.8
Econ Intell Unit	NA	NA
Oxford Economics	2.3	2.9
EconoMap	2.2	2.7
JP Morgan	NA	NA
National Bank	2.5	2.8
RBC	2.4	3.0
TD Bank	2.4	2.6
University of Toronto	2.4	3.1
Scotia Bank	2.3	2.6
Informetrica	2.3	2.9
Stokes Econ Consulting	NA	NA
Inst Fiscal Studies	2.5	2.7
Capital Economics	2.4	2.0
Average	2.4	2.7
Median	2.4	2.7
Max	2.5	3.1
Min	2.2	2.0

Source: Consensus Economics Inc. (April 2018).

2.2 The Newfoundland and Labrador Economy

Table 6 provides forecasts of real GDP growth for Newfoundland and Labrador (NL) for 2018 and 2019. The private sector average forecasts (which includes the six big banks and the Conference Board of Canada) are for 0.3% real GDP growth in 2018 (with a maximum of 1.5% and a minimum of -2.0%), and 2.2 percent in 2019 (with a maximum of +3.5% and a minimum of 0.5%). The Department of Finance forecasts a decline of 0.8 percent in 2018, followed by growth of 1.1 percent in 2019. So there is general

agreement that the economic growth will be negligible for NL in 2018 and will be moderately positive in 2019.

TABLE 6
NEWFOUNDLAND AND LABRADOR REAL GDP GROWTH FORECASTS (%) - 2018-19

		2018	2019
CIBC World Markets	22-Mar	-0.9	1.5
Scotiabank Group	3-May	0.5	1.4
TD Economics	15-Mar	1.5	1.7
BMO Nesbitt Burns	11-May	0.0	0.5
Royal Bank of Canada	12-Mar	-2.0	3.4
National Bank	1-May	1.5	3.5
Conference Board of Canada	8-May	1.4	3.3
Private Sector Average		0.3	2.2
Department of Finance	7-Mar	-0.8	1.1

Forecasts as of May 11, 2018

Source: <http://www.economics.gov.nl.ca/frcstGDP.asp>, September 14, 2018.

Table 7 shows that the summer 2018 provincial outlook provided by the Conference Board of Canada (CB) forecasts 0% real GDP growth in 2018 for the NL economy, which is the result of “declines in fishing, construction, and consumer demand.” However, they forecast the NL economy would lead all provinces with 4.9% in growth during 2019, which would be primarily due to increasing oil production at Hebron.⁴ The CB also notes additional good news for the oil industry, as “the provincial government recently came to an agreement with two international companies to develop what would be the province’s first deep-water production plant, the \$6.8-billion Bay du Nord initiative.” While this initiative is not expected to move ahead for a few years, the CB notes that “there will be further exploration and development work in the meantime.” The CB notes that, despite the positive developments in the oil industry, the NL economy faces challenges in the form of declining business investment, high unemployment rates, and an aging population.

⁴ The CB real GDP forecasts for NL for 2018 and 2019 in this summer forecast of 0% and 4.9% differ from the CB forecasts made in May 2018 of 1.4% and 3.3% included in Table 6. The CB does not explain these differences, but it is reasonable to assume they are related to “timing differences,” since the forecast growth over the two-year period is similar in magnitude.

TABLE 7
CONFERENCE BOARD OF CANADA ECONOMIC FORECASTS FOR NL - 2017-2019

Growth (%)	2017	2018	2019
Real GDP	1.9	0.0	4.9
Household Disposable Income per capita	1.4	0.3	2.2
Employment	-3.7	-0.8	-0.7
Unemployment Rate (Actual %)	14.7	15.1	15.1

Source: Conference Board Provincial Outlook, Summer 2018.

3. CAPITAL STRUCTURE CONSIDERATIONS

3.1 Background

I begin my discussion with a review of the risk assessment of Newfoundland Power (NP) in previous hearings. In Order No. P.U. 19 (2003), the Board stated (on page 33) that they did “not anticipate a change in the business risk of NP in the foreseeable future and concurs with the assessment of NP and the cost of capital experts that NP is of average business risk compared to other utilities.” On page 30, the Board noted that NP stated “All experts agreed that Newfoundland Power has an approximately average utility risk.” The Order also notes (on page 32) an October 2002 report by S&P confirming an “A” rating for NP’s first mortgage bonds, wherein S&P noted (bold added for emphasis):

*“Newfoundland Power’s relatively **low risk profile** is supported by cost of service/rate of return regulation; the ability to flow through all power costs; a weather normalization mechanism; and no exposure to cyclical industrial consumers, which are serviced directly by the provincial government-owned utility, Newfoundland and Labrador Hydro.”*

Recent debt rating reports (as provided in Exhibit 4 of NP’s evidence) suggest that DBRS and Moody’s continue to share S&P’s 2002 opinion that NP possesses low business risk. For example, in its’ September 5, 2017 debt rating report, DBRS confirmed NP’s “A” rating and noted the following strengths: stable and supportive regulatory environment; solid financial profile; and, stable customer base. Similarly, in its’ January 31, 2018 rating report, Moody’s confirmed NP’s “Baa1” rating, while noting the following three

1 “credit strengths”: low risk regulated utility; supportive regulatory environment; and, stable cash flow
2 metrics.” These conclusions are supported by the following statements (bold added for emphasis):

3 *“Newfoundland Power Inc.’s (NPI, Baa1 stable) credit profile reflects the company’s **low***
4 ***business risk** as a vertically integrated cost-of-service regulated utility with no unregulated*
5 *business activities. Approximately 93% of NPI’s power requirements are purchased from*
6 *provincially owned Newfoundland & Labrador Hydro (Hydro), the cost of which is passed*
7 *through to ratepayers. NPI’s allowed Return on Equity (ROE) is 8.50% for 2016-2018, and we*
8 *view the Newfoundland and Labrador Board of Commissioners of Public Utilities (PUB) as **one***
9 ***of the more supportive regulators** in Canada because regulatory decisions are timely and*
10 *balanced, deferral accounts reduce the risks from factors beyond management’s control and*
11 ***NPI’s 45% equity capital is among the highest authorized levels in Canada.**”*

12 Similar to the 2003 decision, the Board concluded that NP continued to be an average risk Canadian utility
13 on page 13 of Order No. P.U. 43 (2009). On page 12 of this 2009 Order the Board noted that:

14 *“The evidence shows that Newfoundland Power operates in a **low risk environment**. It is accepted*
15 *that the regulatory regime is supportive with a range of mechanisms in place to mitigate risk...”*

16 The Board also noted on page 12 that Mr. Cicchetti suggested NP “operates in a low risk market under
17 supportive regulation,” and that he had characterized the regulatory regime under which NP operates as
18 “exceptional.”

19 On page 17 of Order No. P.U. 13 (2013), the Board suggested that at that time, they considered that
20 “Newfoundland Power continues to be an average risk Canadian utility.” The Board noted on page 14 of
21 this Order that “Newfoundland Power argues that it continues to be an average risk Canadian utility,” while
22 the Consumer Advocate argued that NP was “at most, of average business risk and lower financial risk
23 compared to other Canadian utilities.”

24 In its’ most recent decision, the PUB confirmed its position that NP continues to be an average risk
25 Canadian utility as noted on page 19 (lines 26-33) of Order No. P.U. 18 (2016) below:

26 *“The Board agrees with the opinions of Drs. Booth and Cleary that the risks associated with*
27 *Muskrat Falls and the negative economic outlook have not increased Newfoundland Power’s*
28 *business risk from average to above average at this time, compared to other Canadian utilities.*

29
30 ***The Board concludes that Newfoundland Power’s financial and business risk have not***
31 ***materially changed since the last general rate application. The Board finds that***

1 *Newfoundland Power continues to be an average risk utility.*"

2
3 The quote from Order No. P.U. 18 (2016) above refers to both business and financial risk, where business
4 risk includes an assessment of regulatory risk. The combination of business risk and financial risk
5 determines a firm's total risk. This point is commonly accepted by expert witnesses, regulators, and by the
6 debt rating agencies which make their overall risk (and rating) assessment by giving significant weight to
7 both business and financial risk. In similar fashion, I will consider business risk, including regulatory
8 considerations, financial risk, and total risk. I conclude by providing resulting recommendations regarding
9 NP's capital structure.

11 **3.2 Business Risk**

12 The Board noted on page 11 of Order No. P.U. 43 (2009) the following summary of NP's risk position
13 according to the Consumer Advocate (Transcript, October 14, 2009, page 25/11-20):

14 *"Newfoundland Power has been and will continue to be a very well protected, stable, predictable,*
15 *conservative, low risk utility operating in a very supportive regulatory environment where the*
16 *company enjoys moderate, yet fairly steady customer growth, free from significant competition.*
17 *With only a small amount of generation, Newfoundland Power is predominantly poles and wires.*
18 *In essence, it is very low risk."*

19 This is an excellent summary of NP's operating environment and its resulting business risk, and is consistent
20 with the views expressed by debt rating agencies. Hence, it seems reasonable to consider that NP continues
21 to possess low business risk (which is consistent with the views of the debt rating agencies), unless
22 compelling and material evidence demonstrates that NP's operating or regulatory environment has changed
23 materially since 2016, or as far back as 2003 for that matter. My analysis below leads to me to conclude
24 that such material changes have not taken place. Further, I provide empirical evidence which confirms
25 *quantitatively* - what has generally always been agreed upon by NP, expert witnesses, and the Board, based
26 on extensive *qualitative* analysis – NP is a low business risk utility.

28 **3.2.1 Regulatory Risk**

Newfoundland Power operates in an extremely supportive regulatory environment, which represents a big strength in terms of minimizing its business risk. This is reflected in evidence provided in previous decisions, and by the evidence provided by Mr. Coyne, who rates the Newfoundland regulatory environment well above the Canadian average, and among the top four.⁵ This point is also front and centre in credit rating reports for NP, both past and present. For example, the September 4, 2017 DBRS Rating Report lists a “stable and supportive regulatory environment” as the #1 strength among its “Rating Considerations.” DBRS notes the effectiveness of the following mechanisms, stating that NP “continues to benefit from the use of regulatory deferral accounts such as the rate stabilization account (RSA) and the weather normalization reserve (WNR), which significantly reduce volatility in the Company’s earnings and cash flows.” The comments in the 2017 DBRS report are consistent with previous DBRS conclusions regarding NP’s regulatory environment. For example, in the August 15, 2015 DBRS report, it concluded that NP operates in a regulatory framework that “allows Newfoundland Power to recover all prudently spent operating expenses and earn a reasonable return.” I will verify the validity of this statement quantitatively later in my evidence.

In its January 31, 2018 Credit Opinion Moody’s echoed the sentiment of DBRS, citing a “supportive regulatory and business environment” as one of three “Credit Strengths.” In support of their conclusion, Moody’s notes the pass through mechanisms mentioned by DBRS above and also notes that they consider the Public Utility Board (PUB) to be supportive (bold added for emphasis) “with a track record of reasonably timely and balanced decisions that **enable NPI to generate stable cash flow and earn its allowed ROE** which has not been directly subject to political interference.” They also note that the “PUB’s review and approval of NPI’s capital spending plans and long-term debt issuances significantly reduce the risk of cost disallowances and support NPI’s ability to fully recover costs on a timely basis.” Once again, I will provide empirical evidence later in this report to support the validity of these statements regarding NP’s cash flow stability and their consistency in earning profits.⁶

3.2.2 Operating Environment

NP operates a virtual monopoly in a low business risk environment. As a result, revenue growth has been slow but steady, as one would expect for a company operating in a mature market with virtually no competition. Figure 3 verifies this steady growth in NP’s revenue for the years 1995-2017. Annual revenue

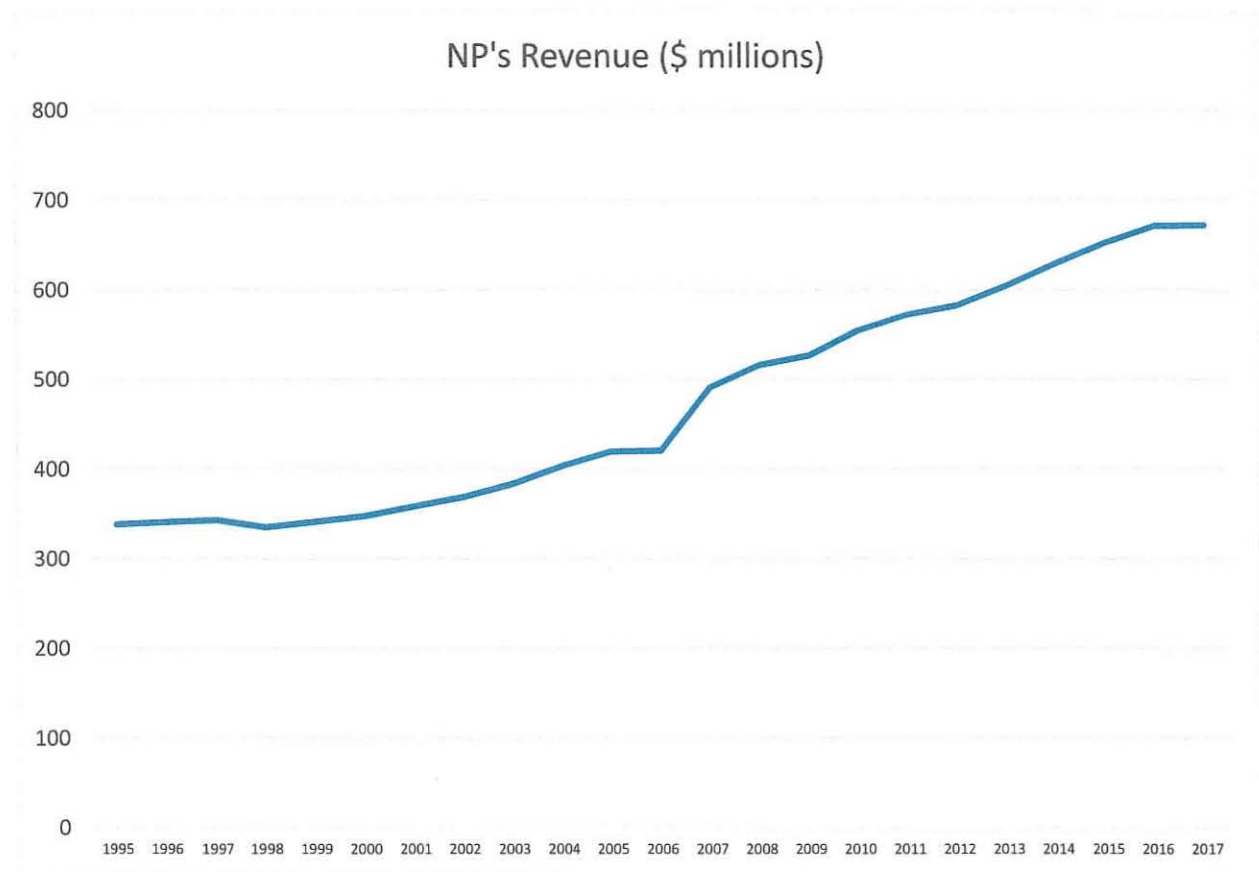
⁵ Refer to Figure 29 of Mr. Coyne’s evidence.

⁶ For example, Table 1 in the response to information request CA-NP-019 shows that NP has earned an ROE above the allowed ROE in 22 straight years, averaging 46 basis points above the allowed ROE over this period.

1 growth averaged 3.4% over this period, and growth was only negative in one year, 1998, when revenue
2 declined 2.3%.

3
4 **FIGURE 3**

5 **NP REVENUE (1995-2017)**



6
7 Data Source: Newfoundland Power's annual reports, 1996 to 2017.

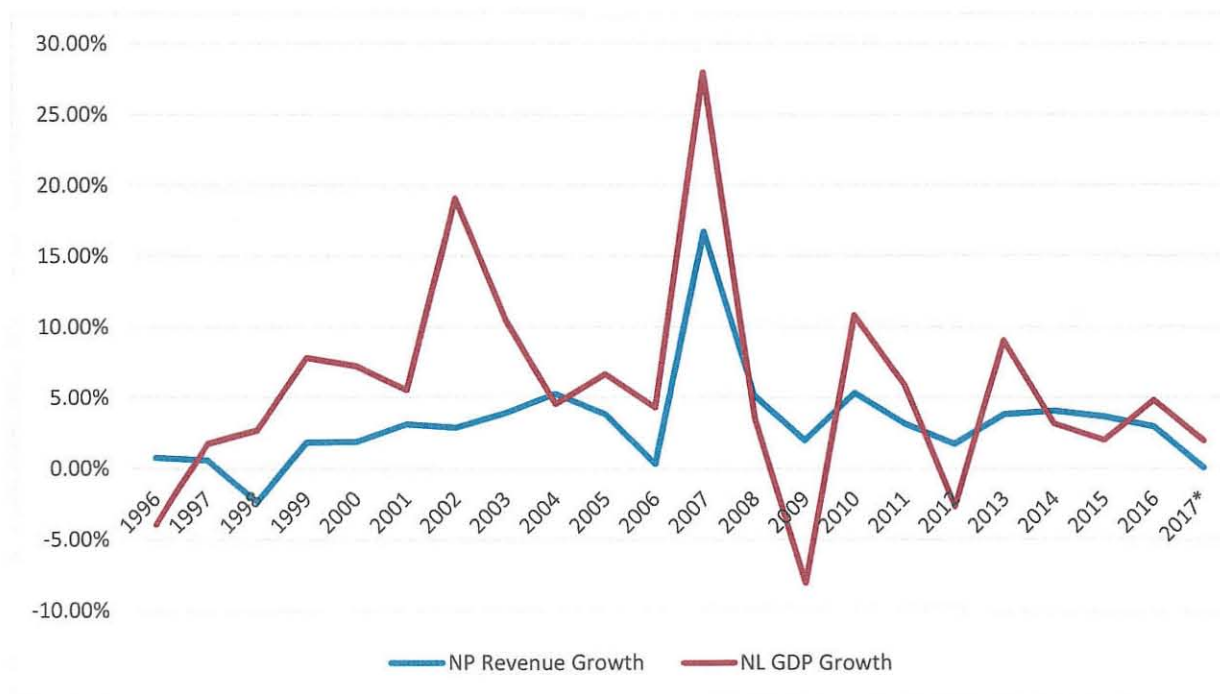
8
9 The CB economic forecast for NL for 2018 is for zero growth, rebounding to grow at 4.9% in 2019, while
10 the private sector forecasts provided in Table 6 averaged 0.3% in 2018 and 2.2% for 2019. It is worthy of
11 note that NP has survived previous declines in economic activity, with their sales and operating income
12 figures continuing to grow steadily. In other words, NP is less affected than companies operating in cyclical
13 industries such as real estate or consumer durables. Indeed, the historical record confirms that NP has
14 weathered economic "storms" in the past and managed to maintain growth in sales and operating income,

1 and earn ROEs at or above the allowed ROEs. For example, Figure 3 plots the annual growth rate in NP
2 revenue versus the real GDP growth rate for Newfoundland and Labrador over the 1996-2017 period. As
3 noted previously, NP experienced only one decline in revenue growth over this period, and grew in all six
4 of the years when the real GDP growth rate was negative.

5 Over this period, the average annual growth rate in NP's sales was 3.4%, versus 2.5% for real GDP growth.
6 The volatility of NP's sales growth was much lower, as measured by its standard deviation of 3.6% versus
7 5.7% for NL's real GDP growth. While the minimum sales growth for NP was -2.3%, the minimum for
8 real GDP growth was -10.1%. Further, the correlation coefficient between NP's sales growth rates and real
9 GDP growth rates over this period was positive as expected, but low at 0.31 - reflecting the fact that NP's
10 sales are more resilient than NL's real GDP growth rates. In other words, the evidence suggests that NP's
11 sales have been resilient to economic decline.

FIGURE 4

NP REVENUE ANNUAL GROWTH VERSUS
NL REAL GDP GROWTH (%) - 1996-2017



Data Source: Newfoundland Power's annual reports, 1996 to 2017, and CANSIM database.

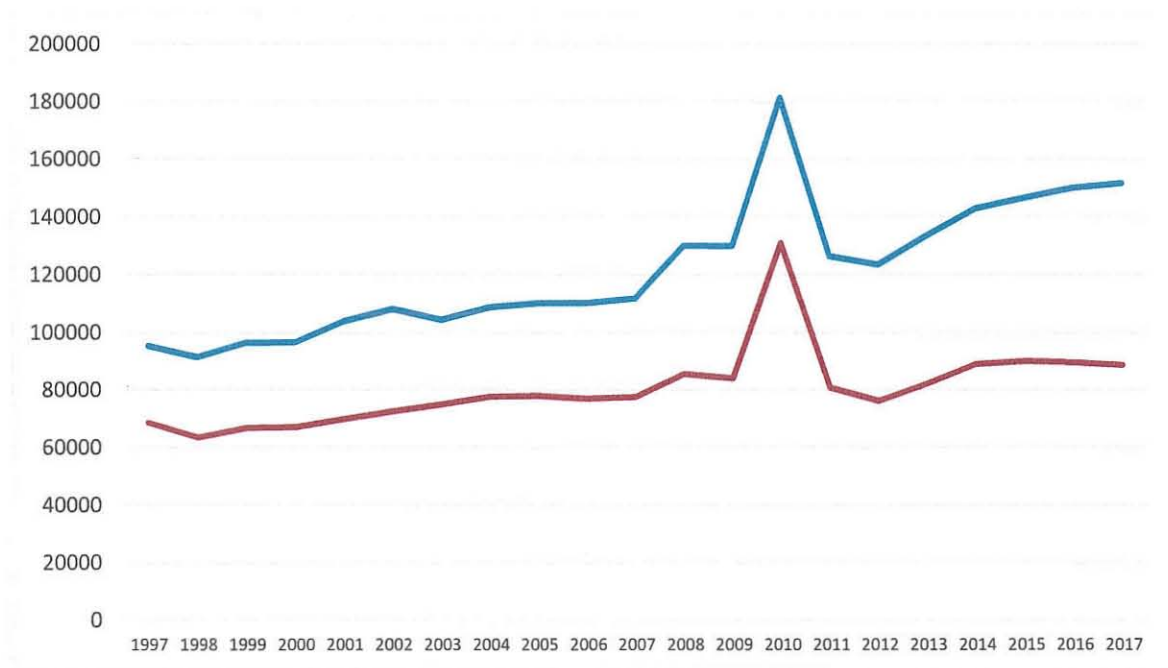
NP serves as a low-risk distributor, with almost all of their energy generation needs provided by Newfoundland and Labrador Hydro (NLH). As mentioned above, since capital expenditures and long-term debt issues are reviewed and approved by the PUB, the risk of cost disallowances is very low. The RSA, WNR, DMIA and PEVDA all serve to minimize variance in operating income related to supply costs, the impact of abnormal weather conditions, as well as other costs to NP. Hence NP faces very little risk that it will not be able to pass legitimate expenses on to customers and earn an adequate rate of return in such a supportive regulatory and business framework.

The points above are consistent with the beliefs expressed in previous hearings and with those expressed by rating agencies. For example, in its January 19, 2015 Credit Opinion, Moody's notes NP's "low-risk business model" as the # 1 rating consideration. Moody's notes that NP is "effectively protected from potential competition," and that sales have grown "at a relatively low and predictable rate of 1-2% annually," and that "growth has not taxed NPI either operationally or financially due to the relatively timely recovery of capital and operating costs." In other words, NP has low business risk because it is operating a virtual monopoly with revenue growing slowly but steadily where it is able to pass reasonably incurred costs onto consumers due to various pass through mechanisms.

It is not surprising that when we combine all of these factors with the stable growth in revenue documented previously, that we also find that NP displayed slow but steady growth in operating income over the 1997-2017 period as proxied by either EBIT or EBITDA, with EBIT (EBITDA) growing at an average annual rate of 2.5% (3.1%). The steady growth of EBIT and EBITDA displayed in Figure 5 is similar to that portrayed for revenue in Figure 3. All of the empirical observations evident in Figures 3 to 5 are consistent with a company that has low business risk. Not surprisingly, NP has been able to earn its allowed ROE or higher for 22 consecutive years, as will be discussed later.

FIGURE 5

NP'S EBIT AND EBITDA (1997-2017)



Data Source: Newfoundland Power's annual reports, 1996 to 2017.

3.2.3 A Quantitative Assessment of NP's Business Risk

My examination of NP's operating and regulatory environment above suggests that NP possesses low business risk. The same can likely be said for most other regulated utilities, especially those that are distributors and that operate virtual monopolies in supportive regulatory environments. Certainly, it is easy to see that regulated utilities such as NP have very low business risk when compared to companies operating in other non-regulated industries that face greater demand variability, greater competition, and that do not have as great an ability to pass through increases in their costs to their customers. As noted in Section 3.2.1 there has been general agreement in previous hearings that NP is at worst an average risk regulated Canadian utility. Finally, rating reports consistently suggest that NP and most other regulated Canadian utilities have low business risk.

Most experts assessing "business risk" would agree that it refers to some variation of factors that cause uncertainty, or volatility, in operating income. For example, the following definition of business risk can be found in the CFA Institute's on-line Glossary of definitions: "The risk associated with operating earnings. Operating earnings are uncertain because total revenues and many of the expenditures contributed to produce those revenues are uncertain" This definition is consistent with the definition of business risk

proposed by Dr. Roger Morin in the 2003 GRA proceedings, as noted in Order No. P.U. 19 (2003), quoted below:

“Business Risk

Refers to the relative **variability of operating profits** induced by the external forces of demand for and supply of the firm’s products, by the presence of fixed costs, by the extent of diversification or lack thereof of services, and by the character of regulation.⁷”

This definition was accepted by the PUB at that time:

“The Board feels the above definitions are consistent and reasonable. The Board accepts these definitions and sees no particular conflict in terms of the evidence presented during the hearing.⁸”

In this section, I use two variations of a commonly used measure of operating income volatility, the coefficient of variation of EBIT (hereafter CV-EBIT), to *quantify* a firm’s level of business risk. The first CV measure (CV(EBIT)) is estimated by dividing the standard deviation (SD) of EBIT by the *expected* EBIT level. The rationale for using the CV as a measure of EBIT volatility rather than simply using the SD of EBIT, is that the SD is affected by the size of EBIT. In other words, firms with larger EBITs will have higher SDs of EBIT, even if they have less volatility, simply because the level of the EBIT figures used to determine the SD are much higher. The CV is more appropriate in such instances and is commonly used to measure volatility since it effectively “scales” the SD of EBIT when it is divided by the expected (or average) level of EBIT.

I use two variations of CV-EBIT described below:

- (1) **CV(EBIT)** is calculated as the standard deviation of EBIT for a given utility over my sample period (1995-2017) divided by the expected EBIT next year (which is determined by multiplying the most recent EBIT figure times one plus the median growth rate in EBIT for that firm).
- (2) **CV (EBIT/Sales)** is calculated as the standard deviation of the EBIT/Sales ratio (1995-2017) divided by the average of the EBIT/Sales ratio over this period.

⁷ Order No. P.U. 19 (2003), In the Matter of the 2003 General Rate Application filed by Newfoundland Power, page 31, source: <http://www.pub.nl.ca/nfpower03/order/pu19-2003.pdf>

⁸ *Ibid.*

1 Measure (1) uses expected EBIT as the denominator in determining the CV of EBIT, which is one common
2 approach used to estimate CV-EBIT, as in Petty et al (2011) for example.⁹ Notice that this approach
3 estimates the standard deviation using all available EBIT observations. Another common approach uses the
4 average EBIT as the denominator, as in the 2013 CFA curriculum (Reading 28, page 351). However, as
5 discussed previously EBIT has continued to grow steadily for NP and has also done so for the other utilities
6 I use for comparison purposes. This implies that using a long-term average that will by nature be well below
7 current EBIT levels may be inappropriate. The second measure of CV-EBIT that I use adjusts for growth
8 in EBIT by using the EBIT/Sales ratio rather than the expected level of EBIT. This measure is preferable
9 if there are significant differences in growth rates in EBIT across the different firms being compared. It is
10 a valid measure of business risk, since it measures volatility in the operating profit margins for firms. It also
11 has the advantage that, as a ratio, the expected value and past average values will often coincide since these
12 *profitability margins often tend to gravitate to some long-term average.*

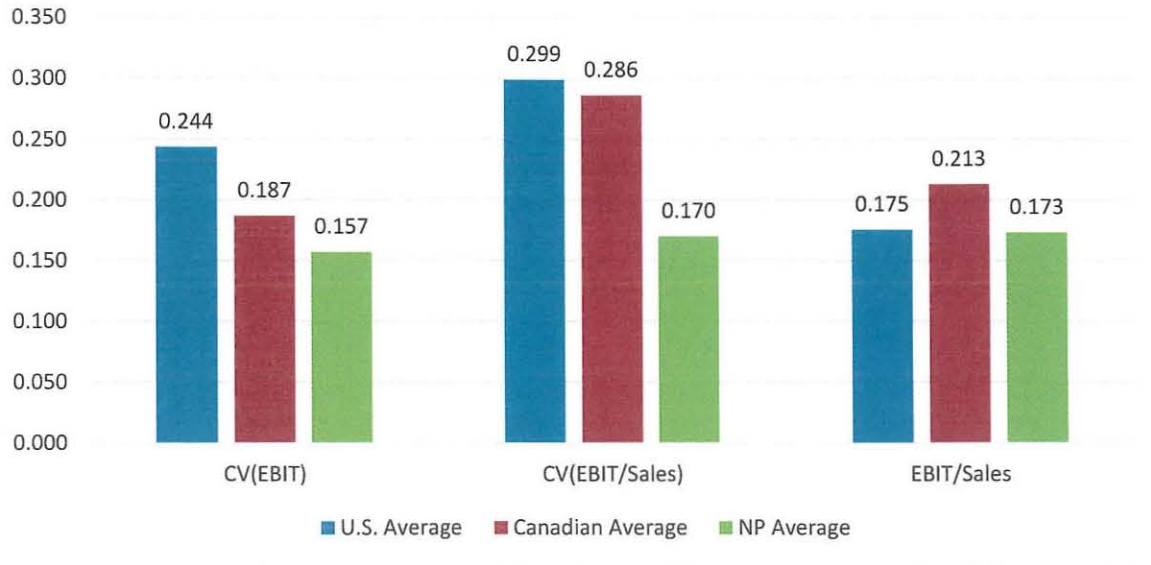
13 I will now compare the level of business risk for NP to Mr. Coyne's U.S. and Canadian proxy groups using
14 the two measures of business risk described above. Figure 6 depicts a summary of the main results of this
15 analysis. The evidence clearly shows that the average U.S. utility has higher volatility in EBIT according
16 to CV(EBIT), relative to the Canadian comparable group (i.e., 0.244 versus 0.187). Both proxy groups used
17 by Mr. Coyne have much higher volatility in EBIT according to this measure than NP, which has a
18 CV(EBIT) of 0.157. We obtain the same message when we examine volatility in the EBIT/Sales ratio as
19 measured by the CV(EBIT/Sales). This ratio is highest for the U.S. proxy group at 0.299, followed by the
20 Canadian proxy group at 0.286, and with the ratio for NP being over 40% lower at 0.170. This evidence
21 confirms that NP is very low business risk – confirming empirically, the conclusions made above in my
22 qualitative assessment of NP's business risk. The EBIT/Sales chart in Figure 6 demonstrates that the
23 average EBIT/Sales ratios are similar for the U.S. firms and NP, with the average being slightly higher for
24 the Canadian proxy group. So, in essence, NP generates similar operating profit margins to U.S. utilities,
25 and slightly lower margins than the Canadian proxy group, but with much, much less volatility in operating
26 income. This of course, suggests U.S. utilities have much higher business risk, which has often been argued
27 in previous Canadian hearings. It also confirms that the Canadian utilities included in Mr. Coyne's proxy
28 group are riskier than NP. This is also not surprising given that his Canadian proxy group is comprised of
29 holding companies that have international exposure, exposure to generation, pipelines, etc.¹⁰

⁹ Source: Financial Management: Principles and Applications, 6th edition, by J. William Petty, Sheridan Titman, Arthur J. Keown, Peter Martin, John D. Martin, Michael Burrow, Hoa Nguyen, 2011, Pearson Higher Education.

¹⁰ The exposures of the companies included in Mr. Coyne's Canadian proxy group can be seen in the response to CA-NP-111.

FIGURE 6

COEFFICIENT OF VARIATION OF EBIT ESTIMATES (1995-2017)



Data Sources: U.S. and Canadian proxy group data was obtained from the Compustat database. Valener was not included in the Canadian proxy group due to data unavailability for 2012-2017. Data for NP was obtained from annual reports from 1995-2017.

Table 8 confirms that the patterns displayed in Figure 6 are not driven by the use of averages, as it reports the results for all U.S. and Canadian utilities used in the comparison groups. Table 8 shows that both CV-EBIT measures are higher for all of the Canadian utilities in Mr. Coyne's proxy group than for NP. This is also true for each utility in Mr. Coyne's U.S. proxy group, with the exception of the CV(EBIT) figure for Pinnacle West (i.e., 0.143 versus 0.157), and the CV(EBIT/Sales) figures for Allette Inc. (0.118), Aliant Energy (0.139), and Southern Company (0.094), which were lower than the NP figure of 0.170. These results confirm that NP has very low business risk, much lower than those in Mr. Coyne's two proxy groups. Since Mr. Coyne's North American proxy group is simply a combination of these two groups, the same comment applies to this proxy group.

TABLE 8

AVERAGE CV-EBIT ESTIMATES FOR ALL FIRMS (1995-2017)

U.S. Firms		CV(EBIT)	CV(EBIT/Sales)	EBIT/Sales
	Allette inc.	0.205	0.118	0.151
	Aliant Energy Corp.	0.221	0.139	0.154
	American Elec. Power	0.215	0.249	0.181
	Duke Energy Inc.	0.237	0.351	0.192
	Edison International Inc.	0.505	0.514	0.186
	Eversource Energy	0.280	0.556	0.131
	OGE Energy	0.246	0.369	0.153
	Pinnacle West.	0.143	0.217	0.224
	PNM Resources Inc.	0.225	0.381	0.143
	Southern Company	0.162	0.094	0.239
	U.S. Group Average	0.244	0.299	0.175
Canadian Firms				
	Canadian Utilities	0.185	0.189	0.267
	Emerea Inc.	0.183	0.244	0.233
	Enbridge Inc.	0.193	0.425	0.140
	Canadian Group Average	0.187	0.286	0.213
Newfoundland Power	NP	0.157	0.170	0.173

Data Sources: U.S. and Canadian proxy group data was obtained from the Compustat database. Valener was not included in the Canadian proxy group due to data unavailability for 2012-2017. Data for NP was obtained from annual reports from 1995-2017.

3.2.4 Concluding Remarks Regarding Business Risk

The qualitative analysis above confirms that NP continues to be a low business risk electric distribution utility operating in a very supportive regulatory environment, similar to the conclusions reached by the Board in previous decisions, and also consistent with the analyses of credit rating agencies of NP. My quantitative analysis provides strong support for these qualitative conclusions, as NP is shown to display much lower volatility in operating income than the utilities included in the U.S., Canadian, and North American proxy groups used by Mr. Coyne. As such, I conclude that NP continues to be a very low business risk firm.

3.3 Financial Risk

In this section, I examine the financial risk of NP by reference to a:

(1) comparison of allowed ROEs and equity ratios with other Canadian utilities; and,

(2) comparison of NP's credit metrics to other Canadian utilities.

My analysis concludes that NP has considerably lower financial risk than its Canadian counterparts.

3.3.1 Allowed ROEs and Equity Ratios

Table 9 provides data on allowable ROEs and equity ratios for Canadian electric distributors in 2018. I did not compare NP to the U.S. utilities included in Mr. Coyne's U.S. and North American proxy groups since the analysis above shows that U.S. holding companies are poor comparators for NP, because they have significantly higher business risk – partly due to their holding company structure and business holdings, and partly due to operating in the U.S. and not in Canada. Similarly, the three Canadian utilities included in Mr. Coyne's Canadian and North American proxy groups that have financial information available are all holding companies that have international exposure, exposure to generation, pipelines, etc.

TABLE 9

ALLOWED ROES AND EQUITY RATIOS (%)

	ROE	EQUITY RATO
Canadian Electric Distributors		
ATCO Electric Ltd.	8.5	37.0
ENMAX Power Corp.	8.5	37.0
EPCOR Distribution Inc.	8.5	37.0
FortisAlberta Inc.	8.5	37.0
FortisBC Inc.	9.15	40.0
Hydro-Quebec Distribution	8.2	35.0
Maritime Electric Company Limited	9.35	40.0
Nova Scotia Power Inc.	9.0	37.5
Fortis Ontario and Other Ontario Electric Distributors ¹¹	9.0	40.0
Saskatchewan Power Corp.	8.5	40.0

¹¹ Including Hydro One Inc.

Average	8.72	38.05
Median	8.50	37.25
Newfoundland Power	8.50	45.0

Data Sources: Mr. Coyne's evidence (Figures 21 and 22) and NP's responses to CA-NP-118 and 119.

Table 9 shows that NP's allowable ROE is slightly below the average, but equal to the median, of other Canadian electric distributors. At the same time, we can see that NP's allowed equity ratio of 45% is well above the mean (38%) and median (37.2%) of other Canadian electric distributors. In fact, the next highest equity ratio is 40%, and 7 of the 10 utilities listed in this table have equity ratios below 38%. Relatively speaking, NP's equity ratio is more than 18% higher than the average equity ratio (i.e., $7/38 = 18\%$), and 21% higher than the median equity ratio (i.e., $7.8/37.2 = 21\%$).

The analysis above shows that NP has lower financial risk than the average Canadian electric distributor based solely on allowed ROEs and equity ratios. While NP's allowed ROE is very close to the average and equals the median, the allowed equity ratio is much, much higher, indicating lower financial risk. It is worthy of note at this time that this lower financial risk does not seem warranted due to higher business risk for NP versus similar Canadian utilities based on the discussion in the previous section, which demonstrated that NP had below average business risk.

3.3.2 Credit Metric Comparisons

In this section, I compare the credit metrics of NP to those for some comparable Canadian utilities.¹² Table 10 provides the statistics for the three main ratios used by DBRS that were obtained from the most recent DBRS reports for the Canadian utilities examined in the previous section. Using the ratios as calculated by one source should enhance the consistency in the calculation of such ratios. The most recent DBRS report for NP is from September 2017, so I calculate averages for both 2017 and 2018 for the utilities that do have 2018 reports available.

¹² I do not consider the U.S. and Canadian utilities included in Mr. Coyne's proxy groups for the same reasons I excluded them when examining allowable ROEs and equity ratios.

1

2

3

TABLE 10

DBRS DEBT RATINGS AND CREDIT METRICS – 2017-18

<u>Canadian Regulated Utilities</u>	<u>Date</u>	<u>Issuer Rating</u>	<u>Total Debt to Capital (%)</u>	<u>CF/Debt (%)</u>	<u>EBIT Interest Coverage</u>
1. CU Inc.	July 2018	A (high)	61.6	17.8	3.32
	July 2017	A(high)	61.4	15.4	2.94
2. Enbridge Gas Distribution Inc.	Sept 2017	A	58.0	14.2	2.54
3. ENMAX Power Corp.	May 2018	A(low)	45.1	17.1	2.22
	May 2017	A(low)	42.0	21.7	2.97
4. EPCOR Distribution Inc.	Sept 2017	A(low)	43.4	19.6	2.87
5. FortisAlberta Inc.	Nov 2017	A (low)	60.5	15.3	2.24
6. FortisBC Inc.	July 2018	A (low)	59.4	13.8	2.58
	June 2017	A	59.2	13.1	2.01
7. Hydro One Inc.	April 2018	A(high)	55.6	13.2	2.65
	April 2017	A(high)	57.3	13.6	2.77
8. Hydro-Quebec	July 2018	A(high)	66.6	12.1	2.15
	June 2017	A(high)	67.5	11.5	2.11
9. Nova Scotia Power Inc.	Jan 2018	A(low)	62.9	18.9	2.21
	Dec 2016	A(low)	62.4	17.5	2.15
10. Saskatchewan Power	Nov 2017	AA	75.2	8.9	1.49
2017 Average			58.69	15.08	2.41
2017 Median			59.85	14.75	2.39
2017 Average (excl. ENMAX, EPCOR, Hydro-Quebec, and Sask. Power)			59.80	14.85	2.44
2017 Median (excl. ENMAX, EPCOR, Hydro-Quebec, and Sask. Power)			59.85	14.75	2.39
2018 Average			58.53	15.48	2.52
2018 Median			60.50	15.45	2.40
2018 Average (excl. ENMAX, and Hydro-Quebec)			59.88	15.93	2.69

**2018 Median (excl. ENMAX,
and Hydro-Quebec)**

60.50

15.80

2.62

Newfoundland Power

Sept 2017

A

54.3

18.8

3.07

Data Source: Various DBRS reports.

The results provided in Table 10 are consistent with what one would expect based on the discussion in the previous sub-section – namely, according to analysis of credit metrics provided by DBRS, NP has lower financial risk than its Canadian counterparts. In particular, NP has a debt-to-capital ratio of 54.3% which is well below the 8 group averages and medians which range from 58.5% to 60.5% for 2017 and 2018 ratios.¹³ This confirms that NP possesses leverage that is well below average. Similarly, NP's interest coverage ratio of 3.07 in 2017 is well above the group average and median figures of that range from 2.39 to 2.69, and is higher than the coverage ratio for each utility in Table 10, with the exception of the ratio for CU Inc. in July 2018. This indicates that NP has much stronger interest coverage (i.e., ability to service debt) than other similar operating utilities. Finally, NP's 2017 CF/Debt ratio of 18.8% is well above the averages and medians which range from 14.8 to 15.9.

The analysis above shows that NP possesses superior DBRS credit metrics to the average Canadian electric distributor. This is consistent with Mr. Coyne's response to CA-NP-134 (Attachment B), which shows that NP had superior credit metrics to the three Canadian utilities he included in his Canadian proxy group according to S&P credit metrics. In particular, according to S&P credit metrics, NP had: a below average Debt to Capital ratio (49% versus 61%); an above average EBITDA to Interest Coverage ratio (4.67 versus 3.57); an above average FFO to Interest Coverage ratio (4.03 versus 3.60); an above average FFO/Debt ratio (17.8% versus 11.1%); and, a below average Debt to EBITDA ratio (3.65 versus 6.34). Even though I have argued that these three utilities are not the best comparators to NP, it does provide further support for the fact that NP has superior credit metrics.

Table 11 provides the ranges for the metrics used in assessing utilities' financial risk by DBRS (for low business risk firms – which is what DBRS uses in assessing utilities such as NP). NP's debt-to-capital ratio of 54% lies below the cut-off point of 55% between an A and AA rating for low business risk firms,

¹³ Average and median ratios are calculated for all of the utilities for both 2017 and 2018, before and after excluding the crown corporation and municipality owned utilities (i.e., ENMAX, EPCOR, Hydro-Quebec and Saskatchewan Power).

according to DBRS criteria. The EBIT coverage ratio for NP is well above the 2.8 cut-off value for a AA assessment, while their CF/Debt ratio of 18.8% also exceeds the 17.5% AA cut-off point. Therefore, it is not surprising their A rating was confirmed in September 2017, since its metrics suggest NP falls in the AA category, and even if the metrics deteriorated somewhat they would be well in the “A range.” The average debt-to-capital ratio for the other Canadian firms lies firmly in the middle of the A category (i.e., 55-65%). The interest coverage and CF/Debt ratios for the sample group also fall squarely in the A range, also consistent with their range of A(low) to A(high) ratings. It is noteworthy that NP has an A rating, falling in the middle of the range of ratings for the firms in this group, despite the fact that the NP possesses stronger credit metrics than the average Canadian electric distributor. This implies that even if NP’s metrics were weaker they would probably maintain their A rating status, given their below average business risk discussed previously.

TABLE 11

CREDIT METRIC CRITERIA
(Low Business Risk)

DBRS Metrics	AA	A	BBB
Cash flow to debt	above 17.5%	12.5 to 17.5%	10.0 to 12.5%
Debt to Capital	below 55%	55 to 65%	65-75%
EBIT to Interest	Above 2.8	1.8 to 2.8	1.5 to 1.8

3.3.3 Concluding Remarks Regarding Financial Risk

The discussion in Section 3.3.1 shows that NP has lower financial risk than other Canadian utilities based upon a combination of an allowable ROE which is about average and equity ratios which are much higher than average. Given this attractive ROE to equity ratio combination, it is not surprising that NP displays superior credit metric ratios to its Canadian peers, as discussed in Section 3.3.2. Clearly, NP has below average financial risk, which reflects its ability to earn an average ROE, while maintaining below average leverage. NP successfully issued \$75 million of 40-year bonds during 2017 at an attractive coupon rate of 3.815%, which is also reflective of its’ solid credit ratings.

3.4 Total Risk Assessment for NP

One compelling way to assess the total risk (i.e., after accounting for both business and financial risk) of NP is to examine their ability to earn their allowed ROE on a consistent basis. This is a bottom line measure

of the total risks faced by NP – “where the rubber hits the road,” so to speak. Table 12 provides such a comparison of the reported ROEs by NP with the respective allowed ROEs. Table 12 shows that NP has earned above its allowed ROE every year since 1996 – 22 straight years! The average difference between the earned ROE and allowed ROE has been 0.24% since 1990, and 0.46% since 1996. This is clear and strong bottom-line evidence that NP is a low-risk business.

TABLE 12

NP’S ALLOWED ROES AND EARNED ROES (%)

<u>Year</u>	<u>Approved ROE (%)</u>	<u>Earned ROE (%)</u>	<u>Difference (%)</u>
1990	13.95	13.71	-0.24
1991	13.95	13.29	-0.66
1992	13.25	13.47	0.22
1993	13.25	12.79	-0.46
1994	13.25	12.03	-1.22
1995	13.25	12.07	-1.18
1996	11	11.21	0.21
1997	11	11.14	0.14
1998	9.25	9.58	0.33
1999	9.25	9.81	0.56
2000	9.59	10.8	1.21
2001	9.59	11.35	1.76
2002	9.05	10.65	1.6
2003	9.75	10.22	0.47
2004	9.75	10.12	0.37
2005	9.24	9.6	0.36
2006	9.24	9.46	0.22
2007	8.6	8.66	0.06
2008	8.95	9.13	0.18
2009	8.95	8.96	0.01
2010	9	9.21	0.21
2011	8.38	9	0.62
2012	8.8	8.98	0.18
2013	8.8	9.16	0.36
2014	8.8	9.15	0.35
2015	8.8	8.98	0.18
2016	8.5	8.9	0.4
2017	8.5	8.93	0.43

Average	10.13	10.37	0.24
Median	9.25	9.71	0.22
Avg. (since 96)	9.22	9.68	0.46
Med. (since 96)	9.03	9.34	0.36

Sources: 1990-2014 figures are from the response to CA-NP-019 during the NP 2016 GRA proceedings.
2015-2017 figures are from Exhibit 3 (page 1) of Newfoundland Power's 2019/2020 General Rate Application.

One effective way to compare overall riskiness of NP to the utilities included in Mr. Coyne's U.S. and Canadian proxy groups would be to compare their ability to earn their allowed ROEs, as I did for NP in Table 12. Unfortunately, it is not practical to compare the earned ROEs to allowed ROEs for Mr. Coyne's proxy groups since they are comprised of primarily holding companies that own several distinct operating utilities, which operate in numerous jurisdictions. However, I would note that a recent Oliver Wyman report on North American utilities suggested that the "average utility does not earn its allowed return on equity."¹⁴

An alternative and effective approach to comparing the riskiness of NP to that of Mr. Coyne's proxy groups is to compare the volatility in earned ROEs. This is a measure of total risk (i.e., business and financial risk), since financial leverage influences net income, whereas EBIT is not influenced directly by financial leverage. Table 13 provides the summary statistics for earned ROEs for NP and for Mr. Coyne's proxy groups over the 1995-2017 period. It shows that the average reported ROEs of 8.23% for the U.S. utilities is lower than the Canadian utility average of 10.98% and NP's average of 9.79%. This occurs despite the fact that allowed ROEs are generally higher in the U.S. than in Canada¹⁵, which lends support for Oliver Wyman's observation that the average U.S. utility does not earn its allowed ROE. While this is interesting, the focus of my current analysis is on ROE volatility as a measure of total risk. In this regard, Table 13 shows clearly that NP displays much lower ROE variability than either Mr. Coyne's U.S. group or his Canadian group. In particular, over the 1995-2017 period, NP had a standard deviation of ROE of 0.97% and a corresponding CV(ROE) of 0.099. These figures are much lower than for any of the 10 U.S. utilities or the 3 Canadian utilities included in Table 13. The U.S. group had an average standard deviation of 4.63% and an average CV of 0.563, while the corresponding Canadian group averages were 3.73% and 0.340 respectively. Clearly, NP is well below average total risk as reflected in ROE volatility, and ability to earn

¹⁴ Source: Page 10 of "North America Utilities: Still a Smart Bet for the New Grid," Oliver Wyman, 2015.

¹⁵ For example, Figure 21 (page 41) of Mr. Coyne's evidence reports an average allowed ROE for U.S. electric distributors of 9.67%, which is almost a full 1% above the average allowed ROE of 8.72% for Canadian electric distributors noted in Table 9 of my evidence.

its ROE. This is as one would expect, given its low business risk, and its low financial risk (which is reflected in above average allowed equity ratios, and above average credit metrics).

TABLE 13

ROE SUMMARY STATISTICS (1995-2017)

U.S. Firms		AVERAGE(%)	STD. DEV.(%)	CV(ROE)
	Allette inc.	9.83	2.56	0.260
	Aliant Energy Corp.	8.73	3.72	0.426
	American Elec. Power	7.63	4.04	0.529
	Duke Energy Inc.	8.76	4.55	0.519
	Edison International Inc.	7.03	5.99	0.851
	Eversource Energy	5.07	4.99	0.982
	OGE Energy	8.89	5.53	0.622
	Pinnacle West.	9.59	2.88	0.300
	PNM Resources Inc.	5.31	5.01	0.944
	Southern Company	11.49	2.28	0.199
	U.S. Group Average	8.23	4.63	0.563
Canadian Firms				
	Canadian Utilities	13.55	3.93	0.290
	Emerea Inc.	11.61	2.72	0.234
	Enbridge Inc.	7.79	3.88	0.497
	Canadian Group Average	10.98	3.73	0.340
Newfoundland Power	NP	9.79	0.97	0.099

Data Sources: U.S. and Canadian proxy group data was obtained from the Compustat database.

3.5 Capital Structure Recommendation

3.5.1 The Costs to Consumers of Maintaining an Above Average Equity Ratio

One way to illustrate the relationship between ROE and equity ratios is to use the DuPont system for decomposing ROE into basic components. The standard 3-point decomposition formula breaks ROE into three financial ratios which are considered important by analysts examining company performance. These

ratios are: the net income margin (net income dividend by sales, or “NI/S”); the asset turnover ratio (total sales divided by total assets, or “S/TA”); and, the leverage ratio (total assets divided by total equity, or “A/E”). Since ROE is defined as net income divided by total equity (or “NI/E”), we can see the multiplying the three ratios above by one another leaves us with NI/E or ROE. This equation is presented below:

$$ROE = NI/S \times S/A \times A/E$$

Since the product of the first two terms reduces to NI/A, or the return on assets (“ROA”), it is also common to observe that $ROE = ROA \times A/E$, which is convenient for my discussion.

I begin by noting that a higher leverage ratio (A/E) implies a lower equity ratio, and vice-versa. “Non-regulated” firms will typically try to choose a leverage ratio that generates higher ROEs, while recognizing that higher leverage ratios generate additional financial risk, as reflected in greater volatility in ROEs, all else being equal. However, regulated utilities earn higher NI if they have a higher ER (i.e., lower A/E) since they earn the allowed ROE as applied to this higher equity dollar figure. Of course they should also earn higher ROEs if they are awarded higher allowed ROEs. So regulated utilities prefer both higher allowed ROEs and higher ERs. Not only do the utilities earn higher net income if they have higher allowed ERs, it also reduces their financial risk and the associated volatility in ROEs, all else being equal. Of course, this additional net income and reduction in earnings volatility comes at the expense of consumers, as reflected in their rates.

I would note that my analysis above demonstrates that NP has low business risk, as reflected by volatility in operating income, and that they also maintain low total risk as reflected in both their ability to earned allowed ROEs and the low volatility in those earned ROEs. The granting of higher equity ratios to utilities serves to reduce the financial risk of such utilities. Since total risk is a function of both business and financial risk, such a process is a useful mechanism for controlling total risk. However, it does come at a cost, which I illustrate in the example below.

Assume that one utility (A) is allotted an equity ratio of 45%, based on an allowed ROE of 8.5%, while another utility (B) is allotted a 40% equity ratio with the same ROE. I assume for illustrative purposes that both Sales (S) and Total Assets (TA) are \$1 million for the utility.

Example – Net Income Effect:

Utility A: Allowed ER of 45%; TA = \$1m; S = \$1m.

$$\text{So Equity (E)} = 0.45 \times \$1\text{m} = \$450,000$$

1 Since $ROE = \text{Net Income (NI)} / E$,

2 Then $NI = E \times ROE = (\$450,000) \times (.085) = \$38,250$

3 Utility B: Allowed ER of 40%; TA = \$1m; S = \$1m.

4 So $E = 0.40 \times \$1m = \$400,000$

5 $NI = E \times ROE = (\$400,000) \times (.085) = \$34,000$

6 So Utility B earns an additional \$4,250 in net income on sales of \$1million (i.e., an extra 0.425%). This is
7 the cost of providing a higher equity ratio to Utility A, which is borne by consumers. This additional cost
8 may be necessary if Utility A has greater business risk than Utility B, since it would reduce A's financial
9 risk, which reduces its total risk. However, if both A and B have similar business risk, this additional cost
10 to consumers is unwarranted.

11 We can apply this logic to NP to obtain an estimate of the cost to Newfoundland consumers of
12 maintaining an equity ratio (ER) of 45%, which is well above the Canadian average of 38% (median
13 37.2%) as reported in Table 9. I will consider the costs of a 45% equity ratio versus the 40% ratio I
14 recommend in my discussion below.

15 I begin by taking the 2017 "Average Rate Base" figure of \$1,092,254,000 from page 7 of Exhibit 3 of
16 Newfoundland Power's GRA 2019/2020. We can then multiply this figure by 45% and 40% to obtain the
17 resulting Common Equity (CE) dollar figures of \$491,514,300 and \$436,901,600 respectively. Using both
18 the 8.5% allowed ROE and the 8.93% ROE earned by NP in 2017, these common equity figures translate
19 into the following net income available to common shareholder figures (NIACS):

	<u>Using ROE = 8.5%</u>	<u>Using ROE = 8.93%</u>
21 For an ER =45%:	$NIACS = \$491,514,300 \times .085 = \$41,778,716$	$= \$491,514,300 \times .0893 = \$43,892,227$
22 For an ER =40%:	$NIACS = \$436,901,600 \times .085 = \$37,136,636$	$= \$436,901,600 \times .0893 = \$39,015,313$
23 NIACS Differences:	\$4,642,080	\$4,876,914

24 We must offset these costs to consumers of maintaining a 45% ER against the additional financing costs
25 associated with maintaining a 40% ER (which would also be borne by consumers). With a 40% ER, the
26 CE figure is \$54,612,700 lower. Assuming the ER is reduced to 40% from 45% by issuing long-term debt

1 at 4%, we obtain the following additional after-tax cost to be passed through to NIACS due to the issue of
2 \$54,612,700 in new debt.¹⁶

$$3 \quad \text{Additional Debt Costs (After-tax)}^{17} = \$54,612,700 \times 0.04 \times (1 - 0.2368) = \$1,667,217$$

4 Since this after-tax cost would be passed on to consumers through rates, we subtract this amount from the
5 benefits that consumers would receive if the NIACS was reduced (as above) due to reducing the ER from
6 45% to 40%. Thus, we can obtain the following “net benefit” in terms of NIACS to NP’s CE owners of
7 maintaining a 45% ER versus a 40% ER:

$$8 \quad = (\$4,642,080 - \$1,667,217) \text{ to } (\$4,876,914 - \$1,667,217) = \$2,974,863 \text{ to } \$3,209,697.$$

9 Dividing these figures by NP’s 2017 NAICS margin of 6.09%¹⁸, we get the following estimate of
10 “Additional Revenue” required to generate this net benefit in terms of NIACS:

11 Additional Revenue associated with maintaining 45% ER (versus 40%):

$$12 \quad = (\$2,974,863/0.0609) \text{ to } (\$3,209,697/0.0609) = \text{to } \$48,848,325 \text{ to } \$52,704,384.$$

13 Of course, this additional revenue is collected from NP’s customers. During 2017 NP generated 5,922.2
14 GWh of Energy Sales, so we can estimate the additional revenue impact per GWh as:

15 Additional Revenue per GWh = $(\$48,848,325/5,922.2) \text{ to } (\$52,704,384/5,922.2) = \$8,248.3 \text{ to } \$8,899.5$
16 per GWh, or \$0.0082483 to \$0.0088995 per KWh. NP’s 231,639 Domestic customers accounted for
17 3,644.8 GWh (or 61.54%) of NP’s total GWh of energy sales in 2017.¹⁹ Therefore the average domestic
18 customer uses $3,644,800,000/231,639 = 15,734.83 \text{ KWh}$ per year. So we can estimate the average
19 additional annual cost to the typical NP domestic customer of maintaining a 45% ER as follows:

$$20 \quad \text{Additional Cost} = 15,734.83 \text{ KWh} \times \$0.0082483 \text{ to } \$0.0088995$$

$$21 \quad = \$129.79 \text{ to } \$139.96 \text{ annually, or } \$10.81 \text{ to } \$11.66 \text{ per month.}$$

¹⁶ Using 4% is conservative, given that NP issued \$75 million in 40-year bonds at a rate 3.815% during 2017.

¹⁷ The tax rate of 23.68% is estimated using the 2017 “Income tax expense” figure of 12,882 divided by the 2017 “Earnings Before Income Tax” figure of 54,408. Both of these figures can be found on page 3 of NP’s 2017 Annual Financial Statements.

¹⁸ Calculated by dividing the 2017 “Net Earnings Applicable to Common Shares” figure of 40,971 by the 2017 “Revenue” figure of 672,435 as reported on NP’s 2017 Income Statement.

¹⁹ Sources: Tables 5-2 and 5-3 on pages 5-3 and 5-4 of NP’s GRA 2019-2020.

1 This represents close to 10% of the average monthly bill for NP's residential customers, which is a real
2 cost.²⁰

4 **3.5.2 Conclusions Regarding Capital Structure**

5 Both the qualitative discussion and quantitative analysis in Section 3.2 clearly demonstrates that NP has
6 low business risk. Section 3.3 shows that NP currently has less financial risk than other Canadian utilities
7 based on an examination of allowable ROEs and equity ratios, and of existing credit metrics. Not
8 surprisingly, Section 3.4 demonstrates that NP has low total risk as reflected in its ability to earn its allowed
9 ROE, and in terms of the variability of its earned ROE. My analysis shows that a low risk utility like NP
10 does not require an equity ratio that is close to 20% higher than the average Canadian electric distributor,
11 while being allowed to earn an ROE that is around average. I recommend that the Board reduce NP's equity
12 ratio to 40%, which would bring it in line with Canadian averages. The additional "above average" of 7-
13 8% equity thickness is not warranted based on NP's business risk, nor is it required to maintain solid credit
14 metrics that will permit NP to maintain its ability to raise credit on reasonable terms.

²⁰ Source: Figure 27 of Mr. Coyne's evidence reports a monthly average bill of \$122.08 for NP's domestic customers.

APPENDIX A – Cleary CV

DR. SEAN CLEARY, CFA

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4014 Bath Road
Kingston, Ontario
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Areas of Interest

Research: Empirical studies in corporate finance and investments.

Teaching: Investments, Business Finance and Corporate Finance. I have also taught numerous courses and delivered seminars in many preparatory programs designed to prepare students to write exams for all three levels of the CFA program and the CSC for over 10 years.

Education

University of Toronto
Saint Mary's University
Saint Francis Xavier University
Acadia University

Ph.D., Finance, 1993 - January, 1998
M.B.A., Finance, 1987-1989
B.Ed., Secondary, 1983-84
B.A., Economics, 1979-1983

Career Experience

Queen's University

BMO Professor of Finance
Director of Master of Finance (2016-present; 2008 - 2014)

Saint Mary's University

Associate Dean and Pengrowth Nova Scotia Professor in
Petroleum Financial Management: (July 2007 – June 2008)
Professor: (September 2006 – June 2007)
Associate Professor: Finance (September 2000 - June 2001, July
2002 – August 2006)
Assistant Professor: Finance (July 1998 - August 2000)
Lecturer: Finance and Statistics, (1990-1993, Full Time)

York University

Assistant Professor: Finance (July 2001 – June 2002)

The University of Lethbridge

Assistant Professor: Finance (1997- 1998, Full Time)

The University of Toronto

Lecturer: Business Finance (Undergraduate and MBA)
(1994-1997, Part Time)

Ryerson University

Lecturer: Investment Finance (1994-1997, Full Time)

WSC Investment Services

Instructor for CSC and CFA Seminars and
Prepare Course Materials and Deliver Seminars for various
professional organizations; (1996-present, Part Time)

Royal Bank of Canada

Commercial Lender; (1989-1990, Full Time)

Expert Witness Experience:

2017-18, 2016-17 and 2015-2016 – Utilities Consumer Advocate (UCA) of Alberta
Prepared and testified regarding an appropriate ROE and capital structure for regulated Alberta utilities.

2015-2016 – Newfoundland Consumer Advocate
Prepared and testified regarding an appropriate capital structure for Newfoundland Power.

2017-18, 2017 and 2014 – Utilities Consumer Advocate (UCA) of Alberta
Prepared and testified regarding appropriate risk margins for commodity risk for regulated Alberta utilities.

2016 – Manitoba Public Insurance
Prepared a report and testified regarding interest rate forecasts.

Publications:

Academic Journals:

“Institutional Investors, Monitoring and Corporate Finance Policies,” 2017. International Journal of Managerial Finance, Vol. 13, Issue No. 2, 186-212. Co-authored with Jun Wang, The University of Western Ontario.

“The Cash Effect and Market Reaction over Three Decades,” 2016. Journal of Accounting and Finance, December 2016, 93-115. Co-authored with Fatma Sonmez, Queen’s University.

“An Efficient and Functional Model for Predicting Bank Distress: In and Out of Sample Evidence,” 2016. Co-authored with Greg Hebb, Dalhousie University. Journal of Banking and Finance, Vol. 64, March 2016, 101–111.

“Managerial Practices and Corporate Social Responsibility,” 2015. Co-authored with Najah Attig, Saint Mary’s University. Journal of Business Ethics, Vol. 131 (No. 1), 121-136.

“Organization Capital and Investment Cash Flow Sensitivity: The Effect of Management Quality Practices,” 2014. Co-authored with Najah Attig, Saint Mary’s University. Lead Article - Financial Management, Vol. 43 (No. 3), 473-504.

“Corporate Legitimacy and Investment-Cash Flow Sensitivity,” 2014. Co-authored with Najah Attig, Saint Mary’s University, Sadok El Ghoul, University of Alberta, and Omrane Guedhami, South Carolina University. Journal of Business Ethics, Vol. 121 (No. 2), 297-314.

“Debt Rating Initiations: Natural Evolution or Opportunistic Behavior?” 2013. Co-authored with Laurence Booth, University of Toronto, and Lynnette Purda, Queen’s University. Journal of Modern Accounting and Auditing, Vol. 9 (No. 12), 1574-1595.

“Institutional Investment Horizons and the Cost of Equity Capital,” 2013, Co-authored with Najah Attig, Saint Mary’s University, Sadok El Ghoul, University of Alberta, and Omrane Guedhami, South Carolina University. Financial Management, Vol. 42 (No.2), 2013, 441-477.

- "Institutional Investment Horizon and Investment-Cash Flow Sensitivity." Co-authored with Najah Attig, Saint Mary's University, Sadok El Ghoul, University of Alberta, and Omrane Guedhami, South Carolina University. Journal of Banking & Finance, Vol. 36, (No. 4), 2012, 1164-1180.
- "Capital Market Developments in the Post-October 1987 Period: A Canadian Perspective." Co-authored with Laurence Booth from the University of Toronto. Review of Accounting and Finance, Vol. 8 (No.2), 2009, 155-175.
- "Cash Flow Volatility, Financial Slack and Investment Decisions," 2008, China Finance Review, Number 1, Vol 2, 63-86. Co-authored with Laurence Booth from the University of Toronto.
- "The Investment Nature of Income Trusts and Their Role in Diversified Portfolios," Canadian Journal of Administrative Sciences. Co-authored with Greg MacKinnon from Saint Mary's University, (Vol 24(4)), 2007, 314-325.
- "The U-Shaped Investment Curve: Theory and Evidence." Co-authored with Paul Povel, University of Minnesota, and Michael Raith, University of Southern California, Lead article, Journal of Financial and Quantitative Analysis, Vol. 42 (No. 1), March 2007, 1-39.
- "Financial Constraints and Investment: An Alternative Empirical Framework." Co-authored with Bert D'Espallier, Hasselt University, Anales de Estudios Economicos y Empresariales, Vol. 17, 2007, 9-41.
- "Dividend Smoothing and Debt Ratings." Co-authored with Laurence Booth and Varouj Aivazian, both from the University of Toronto. Lead article, Journal of Financial and Quantitative Analysis, Vol. 41 (No. 2), June 2006, 439-452.
- "International Corporate Investment and the Relationships between Financial Constraint Measures," Journal of Banking and Finance, Volume 30 (5), 2006, 1559-1580.
- "Are U.S. Variables Good Predictors of Foreign Equity Risk Premiums?" 2006. Co-authored with John Schmitz, President, Sci-Vest Capital Management Inc., The Cyprus Journal of Sciences.
- "Income Trusts: Past Performance and Future Prospects." Co-authored with Greg MacKinnon of Saint Mary's University. Canadian Investment Review, Winter 2005, 53-54.
- "Dividend Policy and the Role of Contracting Environments" FSR Forum, December 2005, 13-20. Co-authored with Laurence Booth and Varouj Aivazian, both from the University of Toronto.
- "Corporate Investment and Financial Slack: International Evidence," The International Journal of Managerial Finance, 2005, 140-163.
- "Industry Affects Do Not Explain Momentum in Canadian Stock Returns," Investment Management and Financial Innovations, 2005(2), 49-60. Co-authored with John Schmitz, President, Sci-Vest Capital Management Inc., and David Doucette, Saint Mary's University.
- "Do Emerging Market Firms Follow Different Dividend Policies from U.S. Firms?" The Journal of Financial Research, Fall 2003, 371-387. Co-authored with Laurence Booth and Varouj Aivazian, both from the University of Toronto.

"Dividend Policy and the Organization of Capital Markets." Journal of Multinational Financial Management, Spring 2003, 101-121. Co-authored with Laurence Booth and Varouj Aivazian, both from the University of Toronto.

"The Risk-Adjusted Performance of Closed-End Funds and the Impact of Discounts." Journal of Today, December 2002, 119-133. Co-authored with Greg Hebb of Dalhousie University and Greg MacKinnon from Saint Mary's University.

"Transactions Costs for TSE-Listed Stocks," Canadian Investment Review, Spring 2002, 20-26. Co-authored with John Schmitz, President, Sci-Vest Capital Management Inc., and Kevin Kerr, TD Securities, Toronto.

"What Has Worked on Bay Street," Canadian Investment Review, Winter 2001, 25-34. Co-authored with John Schmitz, President, Sci-Vest Capital Management Inc.

"The Sensitivity of Canadian Corporate Investment to Liquidity," Canadian Journal of Administrative Sciences, September 2000, 217-232.

"Diversification with Canadian Stocks: How Much is Enough?" Canadian Investment Review, Fall 1999, 21-25. Co-authored with David Copp, Mount Allison University.

"The Relationship Between Firm Investment and Financial Status," Journal of Finance, April 1999, 673-692. Received at least one vote from the editorial board for the top Corporate Finance Paper Award during the year of publication.

"Momentum in Canadian Stock Returns," Canadian Journal of Administrative Sciences, September 1998, 279-291. Co-authored with Michael Inglis, University of Toronto. One of five nominations for "best 1998 CJAS paper."

Books and Book Chapters:

Corporate Finance, First US Edition. Co-authored with Laurence Booth from the University of Toronto and Pamela (Petersen) Drake from Virginia Commonwealth University. John Wiley & Sons. In progress – publication date 2013.

Introduction to Corporate Finance, first four editions, John Wiley & Sons Canada Limited. The first three editions were co-authored with Laurence Booth from the University of Toronto (2007, 2010, 2013), and the fourth edition (2016) co-authored with Laurence Booth and Ian Rakita from Concordia University. This is an Introductory Canadian Finance text that was written from "scratch."

Investments: Analysis and Management, First, Second and Third Canadian Editions, co-authored with Charles P. Jones of North Carolina State University, John Wiley & Sons Canada Limited (1999, 2004, 2008). I was solely responsible for the development of all three Canadian editions, the first being based on an adaptation of the sixth U.S. edition, authored by Professor Jones.

The Canadian Securities Exam Fast Track Study Guide, First, Second, Third and Fourth Editions (2001, 2006, 2009, 2013) – sole author. Published by John Wiley & Sons Canada Limited.

Finance in a Canadian Setting, Sixth Edition, co-authored with Peter Lusztig and Bernard Schwab, both of the University of British Columbia, John Wiley & Sons Canada Limited, March, 2001. I

was solely responsible for the development of this edition of the text, based on an adaptation of the fifth edition, authored by Professors Lusztig, Schwab and Randall Morck of University of Alberta. Market Efficiency, a chapter in the CFA Institute Investment Series book entitled Investments: Principles of Portfolio and Equity Analysis (Wiley, 2011), which is currently used as CFA Level 1 material within the Candidate Body of Knowledge.

“Introduction to Financial Markets,” (on-line course). Developed all seven modules for the Bourse de Montreal, 2002.

“Derivatives for the Retail Investor,” (on-line course). Developed two modules (Forwards and Future, and Options) for the Bourse de Montreal, 2002.

“Derivatives for the Institutional Investor,” (on-line course). Developed two modules (Options and Derivatives for Equity and Index Products) for the Bourse de Montreal, 2002.

“Investment Strategies and Asset Allocation,” Chapter 5, Investment Management Techniques, The Canadian Securities Institute, 1999.

“Equity Securities,” Chapter 12, Investment Management Techniques, The Canadian Securities Institute, 1999.

Cases:

“Time Value of Money: The Buy versus Rent Decision,” with Stephen Foerster. Ivey Publishing, August 2014.

Conference Proceedings:

I have published numerous articles in conference proceedings, as summarized below:

European Financial Management Association annual conference, 2008, 2006, 2005, 2002.

Hawaii International Conference on Business, 2002.

Multinational Finance Society annual conference, 2001.

Atlantic Schools of Business annual conferences, 2000, 1998.

ASAC annual conferences, 2006, 2001, 2000.

Conference Best Paper Awards:

“The Information Content of Institutional Investment Horizon: Evidence from Firms’ Implied Cost of Equity,” 2012, Working Paper, Co-authored with Najah Attig, Saint Mary’s University, Sadok El Ghouli, University of Alberta, and Omrane Guedhami, South Carolina University. Chosen Best Paper in Banking and Finance – 2012 European Business Research Conference.

“Income Trusts: Why All the Fuss and What About the Future?” 2006. Co-authored with Greg MacKinnon from Saint Mary’s University. Chosen as the best paper in the Finance division for the 2006 ASAC Conference in Banff, Alberta.

“The U-Shaped Investment Curve: Theory and Evidence” 2004. Co-authored with Paul Povel, University of Minnesota, and Michael Raith, Rochester University. Presented at the 2004 NFA Conference and received award as the “Best Paper in Managerial Finance.”

“The Sensitivity of Canadian Corporate Investment to Liquidity.” Published in conference proceedings for the 1999 ASAC Conference in Saint John, New Brunswick. Chosen as the best paper in the Finance division for this conference.

Conference Presentations:

Keynote Speaker (Finance Area) – ASAC 2012 Annual Conference.

I have presented papers at numerous conferences, as summarized below:

World Finance Conference, 2015, 2014, 2013, 2011, 2010.

Paris Financial Management Conference, 2014.

Northern Finance Association annual conferences, 2013, 2011, 2010, 2008, 2005, 2004, 2002, 2000, 1996.

Multinational Finance Society annual conferences, 2010, 2001, 1999.

European Financial Management Association annual conference, 2008, 2006, 2005, 2002.

Hawaii International Conference on Business, 2002.

Eastern Finance Association annual conferences, 2003, 2000.

Atlantic Schools of Business annual conferences, 2000, 1998, 1996.

ASAC annual conferences, 2006, 2000, 1999.

Financial Management Association annual conferences, 2013, 2011, 2010, 2008, 2005, 2004, 2001, 1999, 1996.

Southern Finance Association annual conference, 2016, 2008.

Finance Workshops (invited presentations):

Atlantic Canada CFA Society, 2006.

Melbourne Centre for Financial Studies, 2006.

Melbourne CFA Society, 2006.

Monash University (Caulfield), 2006.

University of Melbourne, 2006.

University of New South Wales, 2006.

University of Sydney, 2006.

University of Manitoba CGA Finance Conference 2005

Wilfred Laurier University, 2002.

University of Western Ontario, 2001.

York University, 2001, 2010.

Dalhousie University, 2001, 2013.

Queen's University, 2000.

Saint Mary's University, 2002, 2001, 2000, 1999.

Schulich School of Business, 2010.

Concordia University, 2013.

The University of Waterloo, 2015.

Research Grants

Co-investigator for an Insight Development Grant in the amount of \$55,626 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 2016 to 2018 period (Principal investigator – Jun Wang of the University of Western Ontario).

Co-investigator for a Standard Research Grant in the amount of \$129,980 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 2013 to 2017 period (Principal investigator - Najah Attig of Saint Mary's University).

Awarded three Research Grants of \$90,000 each over three years from the Queen's School of Business at Queen's University (2008-11; 2011-14; 2014-17).

Principal investigator for a Standard Research Grant in the amount of \$60,500 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 2008 to 2011 period.

Co-investigator for a Standard Research Grant in the amount of \$111,000 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 2006 to 2009 period (Principal investigator - Najah Attig of Saint Mary's University).

Principal investigator for a Standard Research Grant in the amount of \$70,118 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 2003 to 2006 period.

Awarded a Research Grant of \$25,000 per year for three years from the Schulich School of Business at York University (July 2001).

Principal investigator for a Standard Research Grant in the amount of \$61,530 from the Social Sciences and Humanities Research Council of Canada (SSHRC) for the 1999 to 2002 period.

Awarded Research Grant for \$1,500 from Saint Mary's University (2003-2004).

Awarded Research Grant for 2,500 from Saint Mary's University (2002-2003).

Awarded Research Grant for \$2,500 from Saint Mary's University (2000-2001).

Awarded Research Grant for \$3,030 from Saint Mary's University (1999-2000).

Awarded Research Grant for \$2,000 from Saint Mary's University (1998-99).

Research Grant in the amount of \$20,000 from the Intellectual Infrastructure Partnership Program (IIPP) at the University of Lethbridge (1997-98).

Research Grant from the University of Lethbridge Research Fund for \$4,500 (1997-98).

Work-in Progress

"Post-Crisis M&As: A Story of Value, Long-Term Focus and Financial Constraints" 2018, Working Paper. Co-authored with Ashrafee Hossain, Memorial University.

"The Leverage-Profitability Puzzle Revisited," 2018, Working Paper. Co-authored with Alan Douglas, and Tu Nguyen, both from the University of Waterloo.

"Does Dual Holdings by Institutional Investors Make a Big Difference?" 2018, Working Paper. Co-authored with Jun Wang, the University of Western Ontario, and Keke Song, University of Melbourne.

"Leverage, Financial Flexibility, and Dividend Smoothing: An Empirical Investigation," 2018, Working Paper. Co-authored with Alan Douglas, the University of Waterloo.

Professional Activities

Member - CFA Society Toronto Senior Advisory Council (January 2018-present)
Editorial Board – Managerial Finance (July 2017-present)
Associate Editor (Finance area) for the *Canadian Journal of Administrative Sciences* (2017-present);
Editor (Finance area) (2014-2016).
Associate Editor for the *European Journal of Finance* (2008-present).
Editorial Advisory Board – Investor Lit (2013-present)
Senior Advisor – Toronto CFA Continuing Education Committee (2014-present); Chair (2013-14);
Vice-Chair (2012-13)
Chair – Awards Committee – CFA Toronto Board of Directors (2008-2011)
President - Board of Directors for the Atlantic Canada CFA Society (2007-2008). Served on the board
from 2001 to 2008.
Editorial Board – *Canadian Investment Review* (2008-2011).
Served as a reviewer for the *Review of Financial Studies*, the *Journal of Financial and Quantitative
Analysis*, *Journal of Business*, *Financial Management*, *Journal of Money, Credit and Banking*, the
Journal of Banking and Finance, the *European Journal of Finance*, the *Journal of Corporate Finance*,
the *Journal of Applied Economics*, the *Multinational Finance Journal*, *Financial Review*, *Journal of
International Financial Management*, the *International Review of Economics and Finance*, the
Canadian Journal of Administrative Sciences, the *Review of Financial Economics*, the *Journal of Risk
Finance*, and for the *Journal of Management and Governance*.
Reviewer for several SSHRC grant applications.
External reviewer/examiner for several tenure and renewal applications received for professors at other
universities, as well as for Ph.D. dissertations.
Conference chair for 2001 Northern Finance Association Annual Meeting, held in Halifax.
Conference organizing committee and Reviewer for several conferences.
Completed the Chartered Financial Analyst (CFA) program, and awarded the CFA designation.
Completed the Professional Financial Planning Course offered by the Canadian Securities Institute, as
well as the Canadian Securities Course (CSC).
Completed the Investment Funds Institute of Canada's Mutual Fund Course.
Prepared course materials for several "on-line" finance courses.
Instructor for Canadian Securities Course Seminars.
Prepared Course Materials for the Canadian Securities Institute.
Delivered Seminars for the Canadian Securities Institute on the Canadian Securities
Course (CSC), Fixed Income Securities and Portfolio Management Techniques.

Student Supervision

External Examiner for several PhD students.
Supervisor, Queen's MSc Finance Student, Wayne Charles
Served as co-director for the Investment Management of Portfolios in Atlantic Canada Training
Program (IMPACT) at Saint Mary's University. This innovative program has students manage a
portfolio of over \$150,000 of "real" money (2005-2008).
Served as faculty advisor to several MBA students preparing their Management Research Project
(MRP) in finance (FIN 669) to satisfy their MBA requirements:
Robert March, "Using Canadian and US Macroeconomic Variables to Predict Canadian Equity
Risk Premiums" (1999).
Simon Sagar, "Do Canadian Investors Overreact?" (2000). Simon also presented his paper at the
1999 Atlantic Schools of Business (ASB) conference in Halifax.
Kevin Kerr, "Bid-Ask Spreads and Commissions on the TSE" (2000).
Scott LeBlanc, "An Investigation of Derivative Use: A Case Study of Cambior Inc." (2000).
David Doucette, "Industry Momentum in Canadian Stock Returns" (2001).

Balakrishna Murty, "The Effect of Board Composition on Firm Value: Some Canadian Evidence" (2003).

Bashir Jallow, "US Economic Factors and International Equity Risk Premia Predictability" (2005).

Kathy Isnor, "The Effect of Corporate Governance Policies on the Corporate Bond Rating" (2005).

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Exhibit 1 - Figure 1 and Table 1 Data and Calculations

	Real GDP Growth	CPI
1962	7.41%	1.60%
1963	5.33%	2.11%
1964	6.62%	2.06%
1965	6.28%	3.03%
1966	6.67%	3.43%
1967	3.03%	3.79%
1968	4.93%	4.11%
1969	5.00%	4.82%
1970	2.88%	1.26%
1971	3.93%	4.96%
1972	5.47%	5.12%
1973	6.85%	9.36%
1974	3.26%	12.33%
1975	1.40%	9.45%
1976	5.87%	5.85%
1977	3.40%	9.47%
1978	3.74%	8.41%
1979	3.65%	9.76%
1980	2.14%	11.11%
1981	2.65%	12.18%
1982	-3.20%	9.24%
1983	2.60%	4.60%
1984	5.93%	3.69%
1985	4.73%	4.38%
1986	2.16%	4.19%
1987	4.10%	4.15%
1988	4.43%	3.99%
1989	2.32%	5.23%
1990	0.15%	4.97%
1991	-2.13%	3.79%
1992	0.88%	2.13%
1993	2.66%	1.69%
1994	4.49%	0.20%
1995	2.68%	1.75%
1996	1.61%	2.20%
1997	4.28%	0.75%
1998	3.88%	1.02%
1999	5.16%	2.58%
2000	5.18%	3.23%
2001	1.77%	0.70%
2002	3.01%	3.88%

2003	1.80%	1.99%
2004	3.09%	2.12%
2005	3.20%	2.15%
2006	2.62%	1.67%
2007	2.06%	2.38%
2008	1.00%	1.34%
2009	-2.95%	1.30%
2010	3.08%	2.40%
2011	3.14%	2.90%
2012	1.75%	1.50%
2013	2.48%	0.90%
2014	2.86%	2.00%
2015	1.00%	1.10%
2016	1.41%	1.40%
2017	3.05%	1.56%

1962-
2017

Average	3.16%	3.92%
Median	3.07%	2.97%
Max	7.41%	12.33%
Min	-3.20%	0.20%
StdDev	2.19%	3.10%
GeoMean	-100.00%	-100.00%

1992-
2017

Average	2.51%	1.80%
Median	2.67%	1.72%
Max	5.18%	3.88%
Min	-2.95%	0.20%
StdDev	1.63%	0.83%
GeoMean	-100.00%	-100.00%

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000501>
<https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610012801>



BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

July 2018

Canada's Inflation-Control Strategy¹

Inflation targeting and the economy

- The Bank's mandate is to conduct monetary policy to promote the economic and financial well-being of Canadians.
- Canada's experience with inflation targeting since 1991 has shown that the best way to foster confidence in the value of money and to contribute to sustained economic growth, employment gains and improved living standards is by keeping inflation low, stable and predictable.
- In 2016, the Government and the Bank of Canada renewed Canada's inflation-control target for a further five-year period, ending December 31, 2021. The target, as measured by the consumer price index (CPI), remains at the 2 per cent midpoint of the control range of 1 to 3 per cent.

The monetary policy instrument

- The Bank carries out monetary policy through changes in the target for the overnight rate of interest.² These changes are transmitted to the economy through their influence on market interest rates, domestic asset prices and the exchange rate, which affect total demand for Canadian goods and services. The balance between this demand and the economy's production capacity is, over time, the primary determinant of inflation pressures in the economy.
- Monetary policy actions take time—usually from six to eight quarters—to work their way through the economy and have their full effect on inflation. For this reason, monetary policy must be forward-looking.
- Consistent with its commitment to clear, transparent communications, the Bank regularly reports its perspective on the forces at work on the economy and their implications for inflation. The *Monetary Policy Report* is a key element of this approach. Policy decisions are typically announced on eight

pre-set days during the year, and full updates of the Bank's outlook, including risks to the projection, are published four times per year in the *Monetary Policy Report*.

Inflation targeting is *symmetric* and *flexible*

- Canada's inflation-targeting approach is *symmetric*, which means that the Bank is equally concerned about inflation rising above or falling below the 2 per cent target.
- Canada's inflation-targeting framework is *flexible*. Typically, the Bank seeks to return inflation to target over a horizon of six to eight quarters. However, the most appropriate horizon for returning inflation to target will vary depending on the nature and persistence of the shocks buffeting the economy.

Monitoring inflation

- In the short run, the prices of certain CPI components can be particularly volatile. These components, as well as changes in indirect taxes such as GST, can cause sizable fluctuations in CPI.
- In setting monetary policy, the Bank seeks to look through such transitory movements in CPI inflation and focuses on a set of "core" inflation measures that better reflect the underlying trend of inflation. In this sense, these measures act as an operational guide to help the Bank achieve the CPI inflation target. They are not a replacement for CPI inflation.
- The Bank's three preferred measures of core inflation are CPI-trim, which excludes CPI components whose rates of change in a given month are the most extreme; CPI-median, which corresponds to the price change located at the 50th percentile (in terms of basket weight) of the distribution of price changes; and CPI-common, which uses a statistical procedure to track common price changes across categories in the CPI basket.

¹ See *Joint Statement of the Government of Canada and the Bank of Canada on the Renewal of the Inflation-Control Target* (October 24, 2016) and *Renewal of the Inflation-Control Target: Background Information—October 2016*, which are both available on the Bank's website.

² When interest rates are at very low levels, the Bank has at its disposal a suite of extraordinary policy measures that could be used to provide additional monetary stimulus and/or improve credit market conditions. The *Framework for Conducting Monetary Policy at Low Interest Rates*, available on the Bank's website, describes these measures and the principles guiding their use.

The *Monetary Policy Report* is available on the Bank of Canada's website at bankofcanada.ca.

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BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

July 2018

This is a report of the Governing Council of the Bank of Canada:

Stephen S. Poloz, Carolyn A. Wilkins, Timothy Lane, Lawrence Schembri, Lynn Patterson and Sylvain Leduc.

Contents

Global Economy	1
Financial conditions	2
United States	3
Other advanced economies	4
Emerging-market economies	4
Commodity prices	5
Canadian Economy	7
Recent developments	8
Capacity pressures and inflation	9
Box 1: Key inputs to the base-case projection	10
Economic outlook	12
Box 2: The economic impact of the recent steel and aluminum tariffs	13
Household spending	14
Box 3: The impact of rising interest rates on mortgage holders	15
Business investment	16
Exports	17
Inflation outlook	18
Risks to the Inflation Outlook	21

Global Economy

Global economic growth remains solid, with the US economy showing particular strength. The Bank estimates that growth in US real gross domestic product (GDP) in the first half of 2018 was even stronger than expected in the April *Monetary Policy Report*. In other advanced economies, economic growth is projected to pick up following temporary softness in the first quarter, but with less momentum than anticipated in April. Higher oil prices are expected to have a slightly negative net effect on global growth, with the impact varying across regions. The Bank expects the global economy will grow by about 3¾ per cent in 2018 before settling at around 3½ per cent in 2019, similar to the April projection (Table 1).

Escalating trade tensions pose considerable risks to the outlook. The projection incorporates actions taken since April by the United States to end exemptions on steel and aluminum tariffs for some of its largest trading partners and to implement previously announced tariffs on China. It also accounts for the ensuing countermeasures. More broadly, this escalation has heightened concerns about a more pronounced shift away from a multi-lateral, rules-based trading system. These concerns could dampen the outlook for global trade and investment growth (Chart 1). In response to these developments, the Bank's base case now includes the measures that have already been implemented. It also considers somewhat greater adverse

Table 1: Projection for global economic growth

	Share of real global GDP* (per cent)	Projected growth† (per cent)			
		2017	2018	2019	2020
United States	15	2.3 (2.3)	3.1 (2.7)	2.5 (2.7)	1.8 (2.0)
Euro area	12	2.6 (2.5)	2.2 (2.3)	1.6 (1.7)	1.4 (1.5)
Japan	4	1.7 (1.7)	0.9 (1.5)	0.9 (1.0)	0.2 (0.2)
China	18	6.9 (6.9)	6.5 (6.6)	6.2 (6.3)	6.0 (6.1)
Oil-importing EMEs‡	33	4.4 (4.4)	4.5 (4.5)	4.2 (4.4)	4.2 (4.2)
Rest of the world§	18	1.3 (1.4)	2.0 (2.0)	2.6 (2.4)	2.7 (2.7)
World	100	3.6 (3.6)	3.8 (3.8)	3.5 (3.6)	3.4 (3.4)

* GDP shares are based on International Monetary Fund (IMF) estimates of the purchasing-power-parity valuation of country GDPs for 2016 from the IMF's October 2017 *World Economic Outlook*.

† Numbers in parentheses are projections used in the previous Report.

‡ The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large emerging markets from Asia, Europe, Latin America, the Middle East and Africa (such as India, Brazil and South Africa), emerging and developing Europe, as well as newly industrialized economies (such as South Korea).

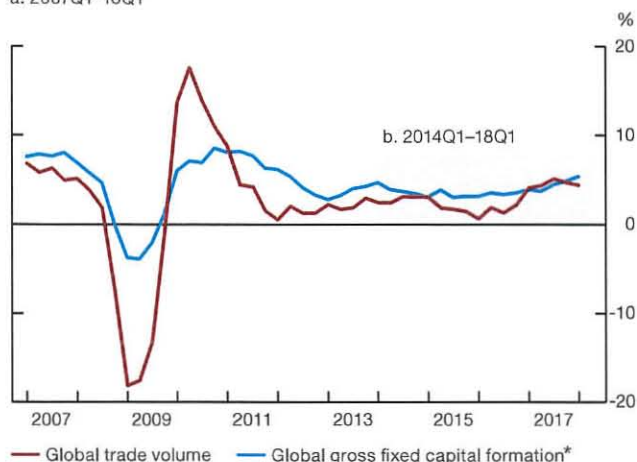
§ "Rest of the world" is a grouping of all other economies not included in the first five regions. It is composed of oil-exporting emerging markets (such as Russia, Nigeria and Saudi Arabia) and other advanced economies (such as Canada, the United Kingdom and Australia).

Source: Bank of Canada

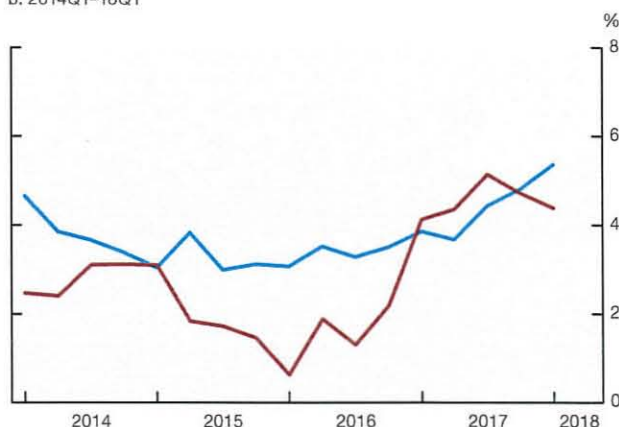
Chart 1: Global trade growth has softened, while investment growth has picked up

Year-over-year percentage change, quarterly data

a. 2007Q1–18Q1



b. 2014Q1–18Q1



* Global gross fixed capital formation is an aggregate of data from 48 advanced and emerging-market economies, accounting for around 84 per cent of global GDP by purchasing-power-parity weight.

Sources: Netherlands Bureau for Economic Policy Analysis, International Monetary Fund and national sources via Haver Analytics, and Bank of Canada calculations

Last observation: 2018Q1

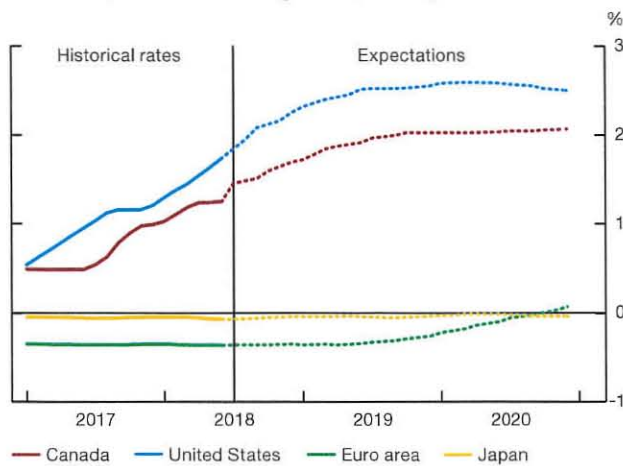
effects from uncertainty on investment, both globally and in North America. The actions and uncertainty effects are assumed to reduce the level of global GDP by 0.2 per cent by the end of 2020.

Global financial conditions remain accommodative

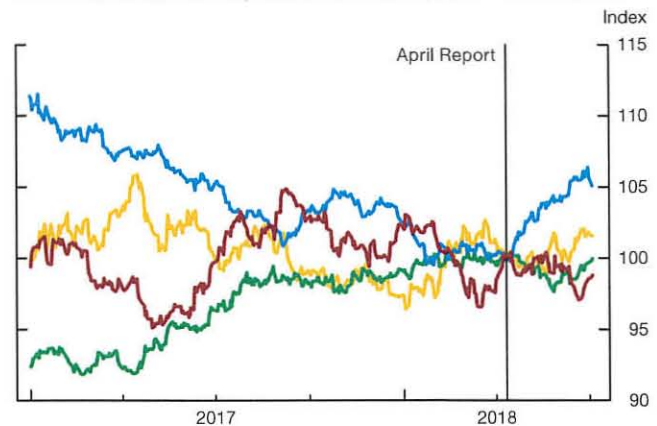
Bond yields remain higher than in 2017 in some regions, reflecting actual and expected changes in monetary policy. Monetary policy normalization is occurring from different starting points and at different speeds. The European Central Bank has announced the conditional conclusion of its asset purchase program (quantitative easing) by the end of December 2018. The economic expansion in the United States is further along than it is in other advanced economies and is receiving a sizable boost from fiscal policy. The US Federal Reserve has continued to withdraw monetary stimulus, and markets are now expecting a faster pace of increases in the federal funds rate. Positive market sentiment about the near-term US outlook has also contributed to an appreciation of the US dollar and portfolio outflows from emerging-market economies (EMEs), exacerbating country-specific vulnerabilities (Chart 2). Equity prices have become more sensitive to trade policy developments. Overall, despite recent movements, global financial conditions are supportive of economic activity.

Chart 2: Financial markets are reacting to US economic strength

a. Market expectations for overnight rates,* monthly data



b. Nominal effective exchange rates, index: April 13, 2018 = 100, daily data



* Historical rates reflect the 3-month moving average of effective overnight rates. Expectations are derived from overnight index swaps.

Sources: J.P. Morgan and national sources via Haver Analytics and Bloomberg L.P., and Bank of Canada calculations

Last observations: historical overnight rates, June 2018; exchange rates, July 6, 2018

The US expansion remains robust

The US economy has been expanding at a solid pace, with recent data signalling more momentum than anticipated in the April Report. Net exports have been unexpectedly robust, reflecting transitory factors, and business investment has been more solid than expected. Job gains continue to be elevated amid a tight labour market, and indicators of consumer sentiment remain high (Chart 3).

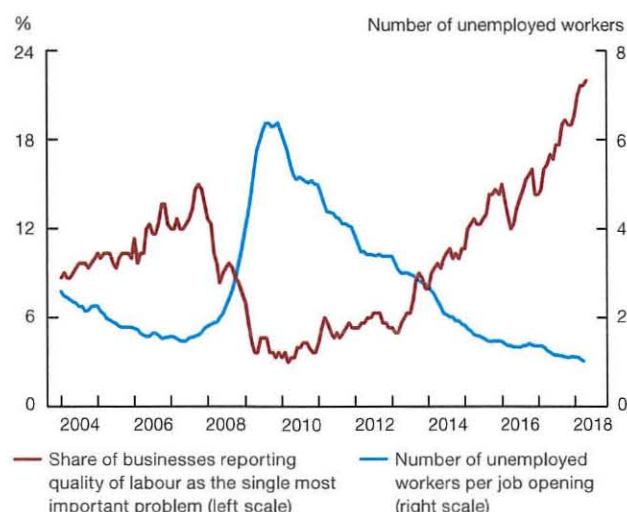
The US economy is forecast to expand by 3 per cent in 2018 and 2½ per cent in 2019, well above the estimated rate of its potential output growth. Consumption is anticipated to rise at a healthy pace, underpinned by strong employment growth, past income tax cuts and elevated household net worth. Solid private demand and corporate tax cuts should drive robust business investment growth. GDP growth is projected to ease to around 2 per cent in 2020, close to potential output growth, as fiscal and monetary policy support diminishes.

US businesses are starting to report that trade policy uncertainty is dampening an otherwise upbeat outlook for investment, although this is not yet evident in the data. The current base-case projection for the US economy therefore incorporates some modest adverse effects of trade policy uncertainty on investment.

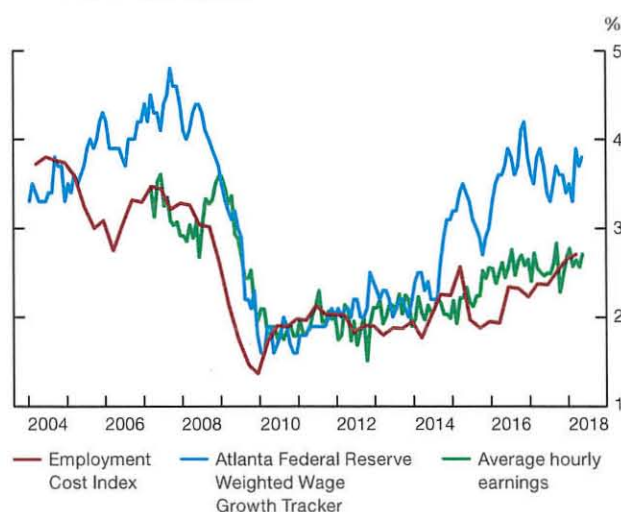
US core inflation has firmed as the effects of transitory factors, including past declines in telecommunication prices, have passed. Wage growth has been modest but is expected to pick up with a tightening labour market. With stronger wage growth and support from excess demand, core inflation is forecast to remain close to the Federal Reserve's inflation target of 2 per cent.

Chart 3: US firms are reporting labour shortages, and wage growth is expected to continue rising

a. US labour market indicators, 3-month moving average, monthly data



b. US wage indicators, year-over-year percentage change, monthly and quarterly data



Sources: Bureau of Labor Statistics, National Federation of Independent Business, Federal Reserve Bank of Atlanta via Haver Analytics and Bank of Canada calculations

Last observations: unemployment, April 2018; Employment Cost Index, 2018Q1; others, May 2018

The outlook for growth and inflation is more modest in other advanced economies

Growth in the euro area softened at the start of the year, partly reflecting labour strikes and some weakness in exports. Recent indicators have been mixed, but solid fundamentals will likely support a rebound in the second quarter. Growth is expected to slow from 2¼ per cent in 2018 to about 1½ per cent in 2019 and 2020, close to the rate of potential output growth, as monetary policy becomes less accommodative. Inflation in the euro area remains tepid and is anticipated to rise only gradually. Political developments have renewed market concerns over fiscal sustainability in the euro area, at the same time that uncertainty from trade policy has increased.

Growth in emerging-market economies remains strong but with rising risks in some countries

Overall the growth outlook for EMEs remains strong. EMEs have generally become more resilient to stress over the past several years. However, both Argentina and Turkey have come under acute financial stress since April. These developments appear to be related to elevated debt levels and weaknesses in their monetary policy frameworks. Growth in oil-importing EMEs is forecast to be around 4¼ per cent over the projection. Growth in oil-exporting EMEs is expected to rise as they benefit from higher oil prices.

China's GDP growth in the first quarter of this year was slower than expected in April, largely reflecting a temporary surge in import growth. This surge was due, in part, to stock building. While imports have remained strong, recent indicators point to a solid rebound in GDP growth. Authorities have eased monetary policy to help offset downside risks from a slowdown in the pace of credit growth and from trade policy developments that could weigh on investor sentiment. Economic growth is still anticipated to moderate from around 6½ per cent in 2018 to around 6 per cent in 2020, as part of the continued transition to more sustainable growth.

Oil prices have risen as a result of supply concerns

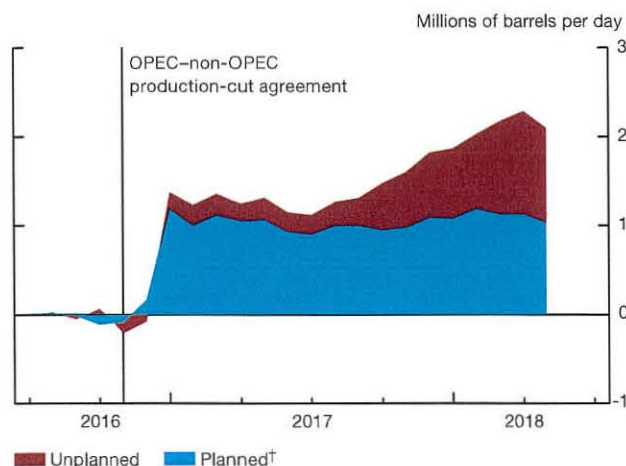
Crude oil prices have been averaging about 15 per cent higher than assumed in the April Report. The increase in prices was partly driven by unplanned output declines in Venezuela and sanctions on exports from Iran, in a market where demand growth has been healthy and excess inventories are being drawn down (Chart 4). US shale drilling has also expanded by less than anticipated, reflecting higher costs and pipeline bottlenecks.

Risks to global oil prices are roughly balanced at current price levels. An important upside risk is that there could be further disruptions in oil supply from Iran and Venezuela. In contrast, production by members of the Organization of the Petroleum Exporting Countries (OPEC) could increase faster than expected as the previous agreement to reduce output expires. The possibility that US shale productivity growth could be stronger than expected provides another downside risk to prices. The spreads between West Texas Intermediate (WTI) and Western Canada Select (WCS) and between Brent and WTI have narrowed recently due to temporary factors. These spreads are expected to widen again because of transportation bottlenecks. The Bank's convention is to assume that oil prices stay at their recent average levels over the projection horizon (Box 1, page 10).

The Bank's non-energy commodity price index is relatively unchanged since April. The prices received by Canadian lumber producers remain high, despite the duties imposed by the United States last year, partly as a result of brisk US home building. Base metal prices have recently declined as a result of the escalation in global trade tensions and market concerns over risks to GDP growth in China.

Chart 4: OPEC actions and supply disruptions are supporting higher oil prices

a. Reductions in OPEC* crude oil production relative to July 2016, monthly data



b. Crude oil prices, daily data



* OPEC refers to the Organization of the Petroleum Exporting Countries. Libya and Nigeria are excluded since they were not part of the November 2016 production-cut agreement.

† Planned reductions are consistent with the agreement between OPEC and non-OPEC countries to cut production.

Sources: International Energy Agency, exchange sources via Haver Analytics and Bloomberg L.P., and Bank of Canada calculations

Last observations: crude oil production, May 2018; crude oil prices, July 6, 2018

Many commodity-exporting economies, including Canada, have recently seen their currencies depreciate despite the rise in oil prices. The typical exchange rate appreciation associated with improving terms of trade is being offset by the combined effects of the broad-based appreciation of the US dollar and of rising trade tensions. Trade developments are important for these countries, given their considerable reliance on open trade and global economic growth. In this context, the Canadian dollar is assumed to remain close to its recent average of 76 cents US, compared with 78 cents US in April.

Canadian Economy

The Canadian economy continues to operate close to full capacity, and GDP is expected to expand somewhat faster than potential. The composition of growth is shifting: the contribution from household spending is expected to be smaller than in 2017 while that from exports and business investment is anticipated to be larger.

In the Bank's projection, economic activity will be supported by continuing solid foreign demand and accommodative financial conditions. While investment and trade are projected to expand, they are being restrained by the US tariffs recently imposed on Canadian steel and aluminum imports and by uncertainty around trade policies. Since April, uncertainty has increased, reflecting delays in the progress of renegotiations of the North American Free Trade Agreement, as well as the broadening and unknown duration of tariffs.

Real GDP growth is projected to average 2.0 per cent over 2018 to 2020, similar to the outlook in the April Report (Table 2). In the first quarter of 2018, business investment and exports were more robust than anticipated. Stronger levels of spending are expected to persist over the projection horizon, partly reflecting higher oil prices, even with the larger impacts from both trade policy uncertainty and tariffs.

Table 2: Contributions to average annual real GDP growth
Percentage points*†

	2017	2018	2019	2020
Consumption	1.9 (2.0)	1.3 (1.5)	1.3 (1.2)	1.2 (1.0)
Housing	0.2 (0.2)	0.1 (0.0)	0.0 (0.0)	-0.1 (-0.1)
Government	0.6 (0.6)	0.7 (0.6)	0.3 (0.3)	0.4 (0.4)
Business fixed investment	0.3 (0.3)	0.7 (0.4)	0.2 (0.3)	0.2 (0.3)
Subtotal: final domestic demand	3.1 (3.1)	2.8 (2.5)	1.8 (1.8)	1.7 (1.6)
Exports	0.3 (0.3)	0.5 (0.0)	0.8 (0.9)	0.8 (0.8)
Imports	-1.2 (-1.2)	-1.2 (-0.5)	-0.4 (-0.4)	-0.6 (-0.6)
Subtotal: net exports	-0.9 (-0.9)	-0.7 (-0.5)	0.4 (0.5)	0.2 (0.2)
Inventories	0.8 (0.8)	-0.1 (0.0)	0.0 (-0.2)	0.0 (0.0)
GDP	3.0 (3.0)	2.0 (2.0)	2.2 (2.1)	1.9 (1.8)
Memo items (percentage change)				
Range for potential output	1.4–2.0 (1.4–2.0)	1.5–2.1 (1.5–2.1)	1.4–2.2 (1.4–2.2)	1.3–2.3 (1.3–2.3)
Real gross domestic income (GDI)	4.0 (3.9)	2.6 (2.5)	2.3 (1.9)	2.0 (1.8)
CPI inflation	1.6 (1.6)	2.4 (2.3)	2.2 (2.1)	2.1 (2.1)

* Numbers in parentheses are from the projection in the previous Report.

† Numbers may not add to total because of rounding.

Consumer price index (CPI) inflation has hovered around 2.2 per cent recently. It is expected to reach 2.5 per cent in the third and fourth quarters before returning to close to 2 per cent in the second half of 2019 as the effects of temporary factors fade. Given the importance of temporary factors, it is useful to look at the Bank's measures of core inflation. These measures remain near 2 per cent, consistent with an economy operating close to capacity.

The composition of GDP growth is shifting

The economy is expected to grow somewhat above its potential in the near term. As anticipated, growth was a modest 1.3 per cent in the first quarter and is expected to average about 2 per cent over the second and third quarters (Table 3 and Chart 5).

The composition of growth has begun to shift away from household spending toward business investment and exports. This shift is occurring as households adjust to higher interest rates and tighter mortgage

Table 3: Summary of the projection for Canada

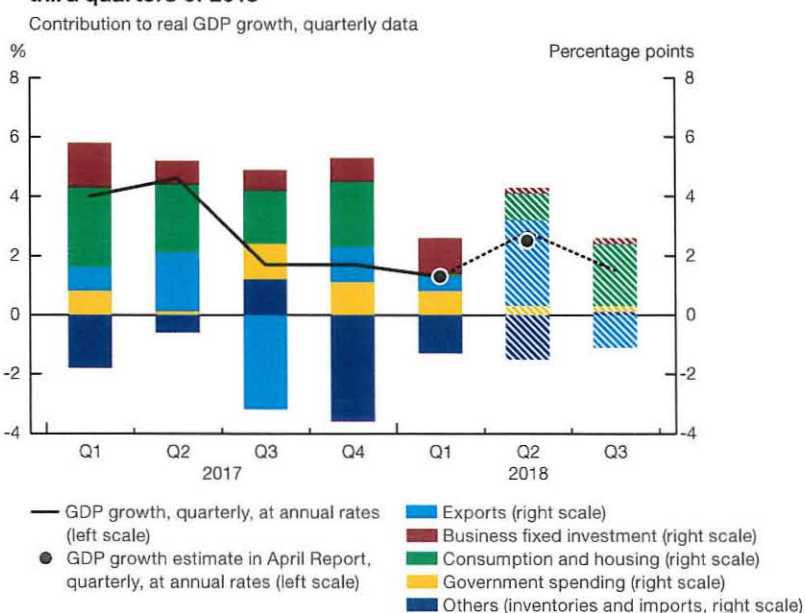
Year-over-year percentage change*

	2017	2018				2017	2018	2019	2020
	Q4	Q1	Q2	Q3	Q4	Q4	Q4	Q4	Q4
CPI inflation	1.8 (1.8)	2.1 (2.1)	2.2 (2.3)	2.5	1.8 (1.8)	2.5 (2.4)	2.1 (2.1)	2.1 (2.1)	
Real GDP	3.0 (2.9)	2.3 (2.2)	1.9 (1.8)	1.8	3.0 (2.9)	2.0 (2.1)	2.2 (2.0)	1.8 (1.7)	
Quarter-over-quarter percentage change at annual rates†	1.7 (1.7)	1.3 (1.3)	2.8 (2.5)	1.5					

* Numbers in parentheses are from the projection in the previous Report. Details on the key inputs into the base-case projection are provided in Box 1.

† Over the projection horizon, 2018Q2 and 2018Q3 are the only quarters for which some information about real GDP growth was available at the time the projection was conducted. This is why quarter-over-quarter percentage changes are not presented past that horizon. For longer horizons, fourth-quarter-over-fourth-quarter percentage changes are presented.

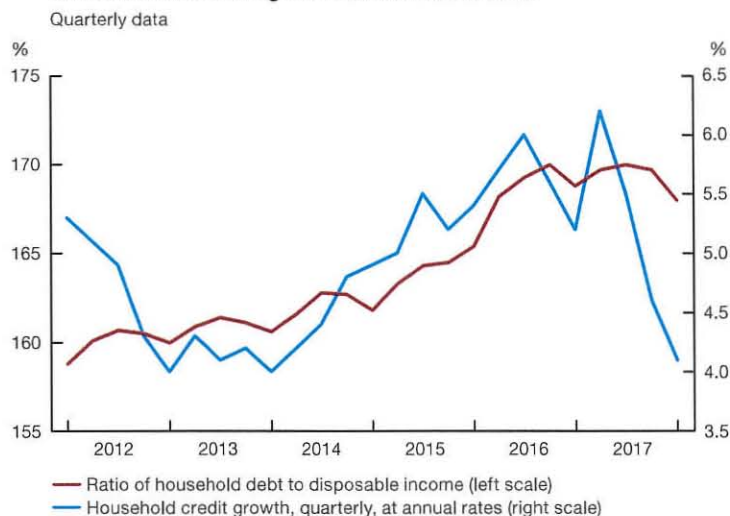
Chart 5: Growth is expected to average about 2 per cent over the second and third quarters of 2018



Sources: Statistics Canada and Bank of Canada estimates and calculations

Last data plotted: 2018Q3

Chart 6: The ratio of household debt to disposable income is edging down as household credit growth continues to slow



Sources: Statistics Canada and Bank of Canada calculations

Last observation: 2018Q1

rules (Guideline B-20).¹ Growth of household credit has continued to slow and is now below the growth rate of household income; as a result, the ratio of household debt to disposable income is edging down (Chart 6). Consumption growth has been slowing since the middle of 2017, led by a pullback in spending on components sensitive to interest rates.² While Guideline B-20 is improving the credit quality of new mortgages,³ its announcement and adoption led to a pull forward of housing resales into the fourth quarter of 2017, followed by a sharp drop in the first few months of 2018. As a result, residential investment in the first half of 2018 likely contracted. A partial rebound in resales is expected in the third quarter.

Meanwhile, firms are expanding their capacity in the face of solid demand. The Bank estimates that business investment and exports were stronger in the first half of 2018 than anticipated in the April Report. Spending on computer equipment, software, and research and development was particularly robust. Because the strength of export growth in the first two quarters mainly reflected a faster-than-expected rebound in oil exports after temporary pipeline shutdowns in late 2017, export growth in the third quarter is expected to slow.

The economy continues to operate near potential, with inflation close to 2 per cent

The Bank judges that the output gap in the second quarter of 2018 was between -0.5 and +0.5 per cent (Box 1). The Bank has revised its estimates of potential output up modestly since April to reflect a higher level

¹ The revisions to Guideline B-20 were announced by the Office of the Superintendent of Financial Institutions in October 2017 and took effect on January 1, 2018. The changes are designed to strengthen residential mortgage underwriting practices.

² Components sensitive to interest rates are vehicle purchases; other transportation services; communications; furniture; food, beverage and accommodation services; and dwelling maintenance. Moderately interest-rate-sensitive components are the operation of transport equipment; recreation and culture; clothing and footwear; insurance and financial services; education; and housing user costs.

³ See the June 2018 *Financial System Review*.

Box 1

Key inputs to the base-case projection

The Bank's projection is always conditional on several key assumptions, and changes to them will affect the outlook for the global and Canadian economies. The Bank regularly reviews these assumptions and assesses the sensitivity of the economic projection to them. The Bank's current assumptions are as follows:

- Oil prices are assumed to remain near recent average levels. The per-barrel prices in US dollars for Brent, West Texas Intermediate (WTI) and Western Canada Select (WCS) have recently averaged close to \$75, \$70 and \$50, respectively, about \$10 higher than assumed in the April Report.
- By convention, the Bank does not attempt to forecast the exchange rate in the base-case projection. Over the projection horizon, the Canadian dollar is assumed to remain close to its recent average of 76 cents US, compared with 78 cents US in April.
- The Bank estimates that the output gap was in a range of -0.5 to +0.5 per cent in the second quarter of 2018. This compares with the April assumption that the output gap was in a range of -0.75 to +0.25 per cent in the first quarter of 2018.¹ The shifting of the range reflects that growth is estimated to have exceeded the pace of potential output growth in the second quarter.
- Business investment in the first quarter of 2018 was more robust than expected, and this stronger level of spending is expected to persist over the projection horizon, partly reflecting higher oil prices. The annual growth rate of potential output is therefore now assumed to be at 1.8 per cent in 2018 and 1.9 per cent in

Table 1-A: Impact of key assumptions on the level of Canadian business investment and exports

Per cent*		2017Q4	2020Q4
Business investment	US tax reform	0.0	-0.9 (-0.9)
	Uncertainty around US trade policy	-0.8	-2.5 (-2.1)
Exports	US tax reform	0.0	-0.4 (-0.4)
	Uncertainty around US trade policy	-0.2	-1.2 (-1.0)

* Numbers for 2020Q4 in parentheses are from the projection in the previous Report.

both 2019 and 2020. While this profile is stronger than in the April scenario, it remains within the Bank's estimated range (Table 2). Details on the Bank's assessment of potential output are provided in the Appendix to the April 2018 Report.

- The neutral nominal policy rate is defined as the real rate consistent with output sustainably at its potential level and inflation equal to target, on an ongoing basis, plus 2 per cent for the inflation target. It is a medium- to long-term equilibrium concept. For Canada, the neutral policy rate is estimated to be between 2.5 and 3.5 per cent.² The economic projection is based on the midpoint of this range, as in the April report.
- Uncertainty in trade policy has increased further since April. For this reason, negative judgment to capture trade policy uncertainty reduces the levels of business investment and exports by more than was assumed in the April Report (Table 1-A).

¹ The assumption for the first quarter of 2018 is the same as that in April. The levels of GDP and potential output in the fourth quarter of 2017 have since been subject to similar small upward revisions, and real GDP grew as expected in the first quarter.

² For more details, see X. S. Chen and J. Dorich, "The Neutral Rate in Canada: 2018 Estimates," Bank of Canada Staff Analytical Note No. 2018-22 (July 2018). The estimate of the neutral rate presented in the April Report is based on the analysis in this note.

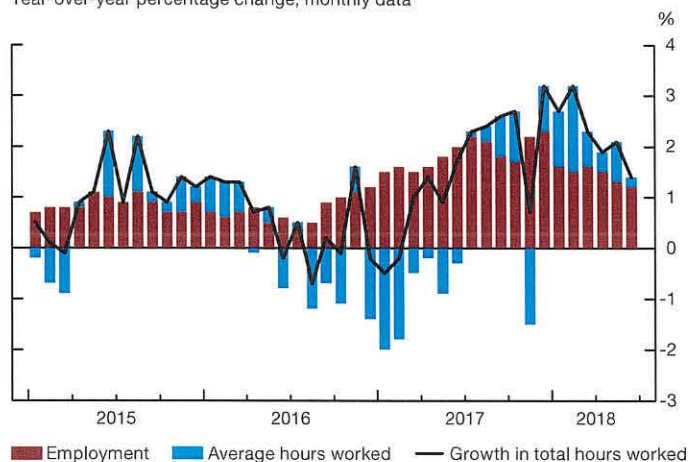
of investment from the first quarter of 2018 through the projection horizon. Investment could grow faster than anticipated in the base-case projection, further raising potential output.

Labour market conditions remain healthy, but growth of employment and average hours worked has slowed from last year's strong pace (Chart 7). Likewise, after declining notably in 2017, the unemployment rate to date this year has remained relatively steady, near its 40-year low. Firms reported in the summer *Business Outlook Survey* that capacity pressures and labour shortages have intensified (Chart 8). Nevertheless, there are areas where labour market slack remains—especially in the energy-producing regions. The recent uptick in the labour force participation rate indicates that additional people may be willing to work. As well, the long-term unemployment

rate is still relatively high, and the participation rate in the youth labour market remains subdued. Against this backdrop, underlying wage growth remains close to 2.3 per cent, indicating less wage pressure than would be expected in a labour market with no slack.^{4,5}

Chart 7: Labour input growth is solid but has slowed since last year

Year-over-year percentage change, monthly data

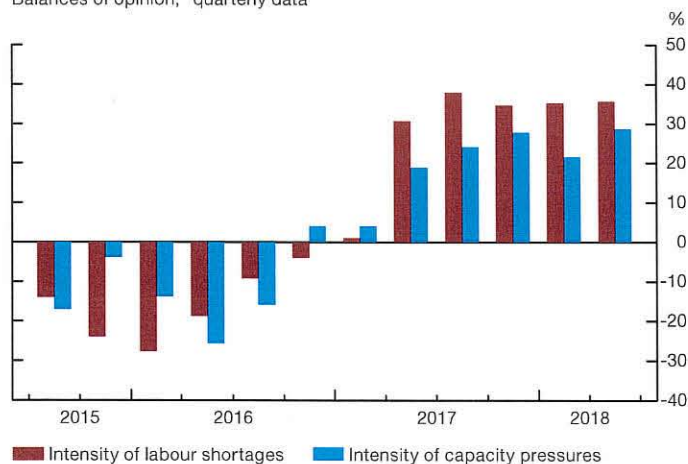


Sources: Statistics Canada and Bank of Canada calculations

Last observation: June 2018

Chart 8: Both capacity pressures and labour shortages have intensified

Balances of opinion,* quarterly data



* Percentage of firms responding to the *Business Outlook Survey* reporting more intense capacity pressures (or labour shortages) compared with 12 months ago minus the percentage of firms reporting less intense capacity pressures (or labour shortages)

Source: Bank of Canada

Last observation: 2018Q2

⁴ Measures of wage growth have diverged recently. The wage measure from the Labour Force Survey grew at a relatively strong pace of 3.6 per cent between June 2017 and June 2018. Recent releases of other wage measures from the Survey of Employment, Payrolls and Hours; the National Accounts; and the Productivity Accounts indicate that they have grown at a slower pace, in a range of 1.9 to 2.1 per cent.

⁵ The Bank constructs a wage measure that better captures underlying wage pressures and reflects the common trend across the alternative measures of labour compensation. For details on this measure, known as the "wage-common," see D. Brouillette, J. Lachaine and B. Vincent, "Wages: Measurement and Key Drivers," Bank of Canada Staff Analytical Note No. 2018-2 (January 2018).

Chart 9: Core inflation measures remain close to 2 per cent

Year-over-year percentage change, monthly data



Sources: Statistics Canada and Bank of Canada

Last observation: May 2018

Consistent with an economy operating near potential, core inflation measures remain close to 2 per cent (Chart 9). CPI inflation is slightly above 2 per cent, mainly reflecting temporary upward pressures from increases in gasoline prices and in the prices of services affected by recent rises in minimum wages.⁶

GDP growth is expected to average 2 per cent, but the outlook is clouded by trade issues

The Bank expects that GDP will grow somewhat faster than potential output over the projection horizon. Consumption should be supported by solid gains in real gross domestic income. The combined contribution to growth of exports and investment will continue to be better than in recent years, even after incorporating the restraining effects of the US tariffs and the Canadian countermeasures (Box 2). Growth of government spending is projected to slow in 2019 and 2020 relative to the previous two years as the effects of the 2016 federal budget stimulus gradually dissipate.⁷

Following the Bank's recent practice, the base-case projection incorporates the impact of trade policy uncertainty (Box 1), as well as the effects of implemented tariffs (Table 4). These tariffs include previously imposed US tariffs on Canadian softwood lumber and newsprint, the new US tariffs on steel and aluminum imports from Canada, and Canadian countermeasures. The dampening effects associated with trade policy uncertainty and the implemented US tariffs subtract about $\frac{2}{3}$ per cent from the level of GDP by the end of 2020. While this drag is larger than in the April Report, the incremental drag on projected GDP roughly balances the positive impact of higher oil prices.

⁶ The prices of certain services, such as restaurants; child care and housekeeping; and personal care services, have increased sharply in Ontario since the start of the year.

⁷ By convention, only announced federal and provincial budgets are incorporated into the projection for government spending. Without a budget from the new provincial government in Ontario, the assumption for spending by the Ontario government is unchanged from the April Report.

Box 2

The economic impact of the recent steel and aluminum tariffs

On May 31, the US administration announced the end of tariff exemptions granted to Canada on steel and aluminum imports. On June 1, it began to levy tariffs of 25 per cent and 10 per cent, respectively, on imports of these products from Canada. The value of exports now subject to the US tariffs was \$16.6 billion in 2017, about 2.5 per cent of total Canadian exports. Together, the primary steel and aluminum sectors represent about 0.5 per cent of Canadian GDP and directly account for around 35,000 jobs.

In response to these measures, the Government of Canada imposed tariffs on imports from the United States worth \$16.6 billion, mainly on aluminum, iron and steel products, as well as various consumer products.¹ These countermeasures took effect on July 1. The federal government also announced that it would make available up to \$2 billion to support Canadian workers and businesses in the steel, aluminum and manufacturing industries.

Impact of the US tariffs

The Bank estimates that the US tariffs on steel and aluminum will reduce the level of real Canadian exports by \$3.6 billion, or about 0.6 per cent (Table 2-A). The impact of the tariffs on export growth is expected to be felt mostly in the second half of 2018; however, discussions with industry representatives indicate that the effects could take longer to materialize.

The size and timing of the effects will depend on multiple factors, including the capacity of Canadian exporters to absorb the tariff costs or to pass them on to their US customers. The ability of both Canadian exporters and US importers to find new trading partners is an additional factor. Impacts would be felt by firms directly affected by the tariffs, as well as by firms in their supply chain. The Bank also expects firms' plans to invest in Canada and Canadian workers' incomes to be negatively affected. Government support could mitigate some of these challenges.

Table 2-A: Recently announced tariffs will have a negative impact on trade

Direct impact (in per cent) of the US and Canadian tariffs on the level of	2018Q4
Canadian exports (from US steel tariff)	-0.4
Canadian exports (from US aluminum tariff)	-0.2
Canadian imports (from Canadian tariffs)	-0.6

Impact of the Canadian countermeasures

Canada's tariffs are estimated to reduce real imports by \$3.9 billion, or about 0.6 per cent, starting in the third quarter of 2018. They are also likely to have complex effects on other sectors of the Canadian economy, notably through higher costs for users of steel, iron and aluminum, as well as for firms using other items made from these products.

These tariffs are expected to put upward pressure on consumer prices, which would temporarily boost consumer price index (CPI) inflation by about 0.1 percentage point until the third quarter of 2019.² Consumers' purchasing power would be reduced, which would weigh on household spending. However, potential mitigants to the direct price effects of the tariffs include Canadian importers finding suppliers outside the United States.

The Bank estimates that trade uncertainty and US trade actions already implemented will subtract about $\frac{2}{3}$ per cent from GDP by the end of 2020. The Bank will continue to closely monitor the implications of these US tariffs and Canadian countermeasures, especially given the level of uncertainty around the size and timing of the effects.

¹ For the complete list of countermeasures imposed by the Canadian government, see "Countermeasures in Response to Unjustified Tariffs on Canadian Steel and Aluminum Products," on the Department of Finance Canada website.

² The consumer products subject to the countermeasures represent about 1 per cent of the CPI basket of goods and services, mostly in three components: household operations, furnishings and equipment; recreation, education and reading; and food. This number is calculated as a weighted sum of the estimated shares of the CPI components that are imported from the United States and subject to the Canadian tariffs, using CPI weights. Data are from Statistics Canada's supply and use tables and from the Canadian International Merchandise Trade Database.

Table 4: Recently imposed US tariffs

Goods subject to new US trade policies	Duty/tariff rate (per cent)	Implementation dates	Total nominal exports in 2017 (Can\$ billions)	Share of total Canadian exports (per cent)
Newsprint and uncoated groundwood paper*	28.7	January 9, 2018 and March 13, 2018	2.2	0.3
Softwood lumber†	20.2	April 24, 2017 and June 26, 2017	8.6	1.3
Steel products	25.0	June 1, 2018	7.2	1.1
Aluminum products	10.0	June 1, 2018	9.4	1.4

* The duty rate shown is the sum of the average preliminary countervailing and anti-dumping duties announced by the US Department of Commerce on January 9 and March 13, 2018, respectively.

† While final duties on softwood lumber became effective in January 2018, preliminary duties were implemented on April 24 and June 26, 2017. The duty rate displayed for softwood lumber is the sum of the average anti-dumping and countervailing duties announced by the US Department of Commerce.

Household spending is expected to grow moderately

Consumer spending is expected to provide less support to GDP growth than in 2017. The contribution of residential investment is expected to be small in 2018 and to subsequently decline. The decline is driven by tighter mortgage rules and higher interest rates.

The sensitivity of consumption and housing to interest rates is estimated to be larger than in past cycles, given the elevated ratio of household debt to disposable income. The impact of higher interest rates likely differs across categories of borrowers, with highly indebted households the most affected (Box 3).

Consumption growth is expected to be supported by a pickup in wage growth and an improvement in Canada's terms of trade resulting from higher oil prices. However, growth in consumer spending is anticipated to be tempered by a modest slowdown in the growth of total hours worked and by the revisions to mortgage rules. The revised rules may prompt some households to save more so that they can pass the tighter mortgage stress tests.

Residential investment is slowing, reflecting the effects of higher interest rates and tighter mortgage rules. Resale activity contracted when the revised measures went into effect but is anticipated to improve over the next few quarters. Data on resale activity and housing starts suggest that the housing market is beginning to stabilize. Growth of new construction spending is expected to slow over the projection horizon. The new mortgage measures may cause households to purchase less-expensive residences because typical homebuyers are now more constrained in how much they can borrow.

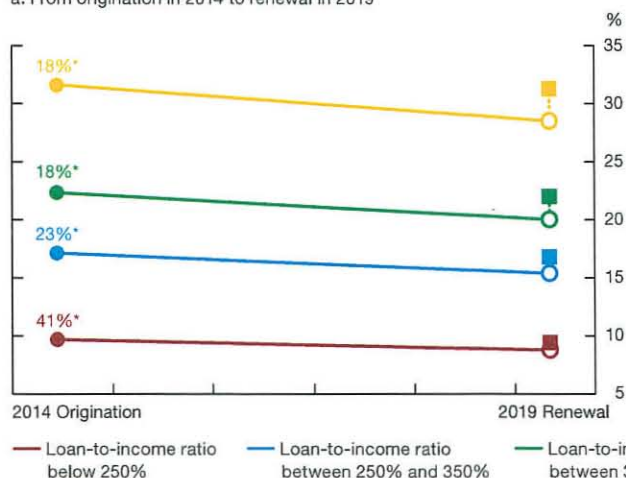
Box 3

The impact of rising interest rates on mortgage holders

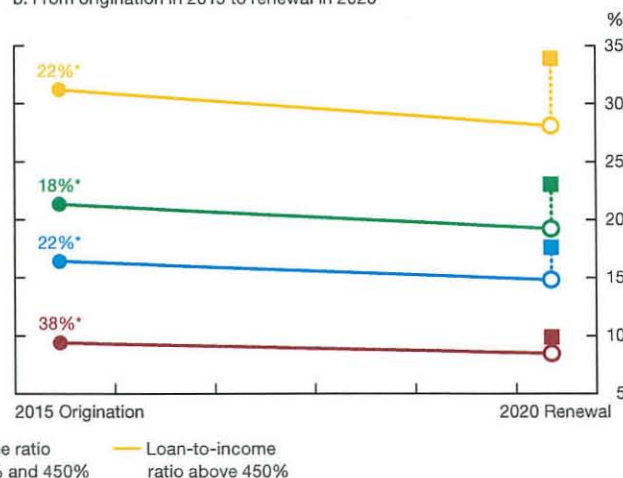
Chart 3-A: Illustration of the impact of higher interest rates on mortgage debt-service ratios

Annual mortgage payments as a percentage of annual income for 5-year fixed-rate mortgages, at different household indebtedness levels at origination

a. From origination in 2014 to renewal in 2019



b. From origination in 2015 to renewal in 2020



Note: Solid circles represent actual mortgage debt-service ratios (MDSRs) at origination; open circles represent estimated MDSRs before renewal; squares represent estimated MDSRs at renewal.

* Numbers above solid circles are the share of 5-year fixed-rate borrowers at each indebtedness level.

Sources: Regulatory filings of Canadian banks and Bank of Canada calculations

When interest rates started to increase in 2017, the Canadian debt-to-income ratio was at a record high. Recently, the ratio has declined slightly, but it remains elevated. For this reason, consumption is likely more sensitive to interest rate increases than in the past, although the impact of rate increases will vary across categories of borrowers.

Mortgage holders have likely benefited from rising nominal income since first taking out their mortgages. Over time, the share of their income going to mortgage payments would have become smaller, possibly allowing for additional consumption. However, higher interest rates generally require higher payments, which would offset the previous income gains and constrain households' ability to spend.

Holders of variable-rate mortgages will see their borrowing costs rise in line with the interest rate increases.¹ Currently, about one-quarter of outstanding mortgages have a variable rate. The impact on holders of fixed-rate mortgages will be delayed, since the effects of higher rates will be felt only when they renew their mortgages.

1 Many borrowers with variable-rate mortgages have contracts that fix the monthly payment, which causes the principal payment to adjust when rates change. When rates increase, fixed payments would enable borrowers to maintain their consumption spending plans by delaying paying down debt.

The potential impact for households renewing fixed-rate mortgages can be quantified using micro data² on all 5-year fixed-rate mortgages issued in 2014 and in 2015 (i.e., mortgages that will be renewed in 2019 and in 2020).³ To illustrate, mortgage debt-service ratios (MDSRs), defined as the ratio of annual mortgage payments to annual income, are calculated for interest rates in 2019 and 2020 that are 100 and 200 basis points higher, respectively. In addition, incomes are assumed to grow by 11 per cent over each 5-year period.⁴

Chart 3-A shows the MDSRs at three different stages: at origination, over the 5-year fixed-rate term and at renewal.⁵ Since mortgage payments are fixed for the term of the loan, the MDSR declines over time as nominal income rises in

(continued...)

2 These data cover only mortgages issued by federally regulated institutions. For more details, see O. Bilyk, A. Ueberfeldt and Y. Xu, "Analysis of Household Vulnerabilities Using Loan-Level Mortgage Data," Bank of Canada Financial System Review (November 2017): 21-33.

3 These cohorts of borrowers represent just under 10 per cent of all Canadian households.

4 This is the growth rate of nominal income per worker over the 5-year period ending in the fourth quarter of 2017.

5 These calculations assume that fixed-rate borrowers do not extend their amortization period to mitigate higher debt-service costs.

Box 3 (continued)

the second stage. However, when interest rates increase at renewal, the reduced MDSRs from income gains experienced over the past five years are erased. For mortgages renewing in 2020, MDSRs are higher than at origination, particularly for highly indebted borrowers.

These estimates of the impact of higher interest rates are in line with interest rate sensitivities embedded in the Bank's macroeconomic projections for household disposable income and consumption.

Solid demand is expected to support investment despite elevated trade policy uncertainty

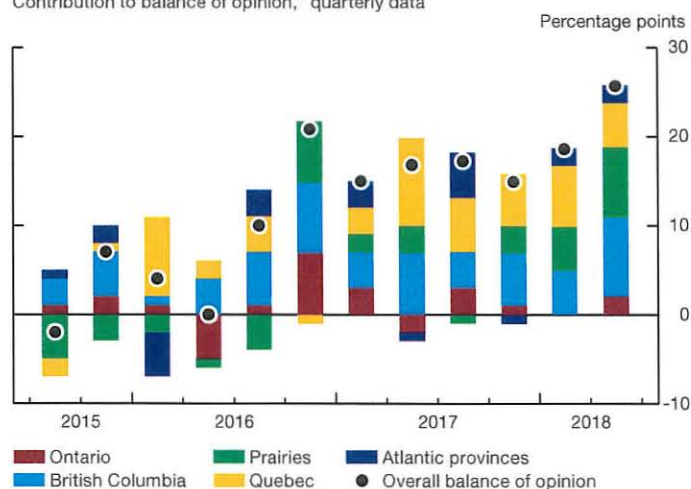
Business investment is expected to expand at a modest pace following the strong growth observed since the beginning of 2017. Firms in all regions expect capacity pressures to intensify (Chart 10). However, exporting firms and their domestic suppliers are anticipated to delay or reduce investment spending because of increasing trade policy uncertainty.

In many sectors, moderate investment growth is expected as firms anticipating solid growth in domestic and foreign demand and capacity pressures increase their capital expenditures. Capacity utilization rates have been rising and are near post-2003 highs in many industries.⁸

In the mining, oil and gas sector, higher prices should provide an incentive to increase investment. Sentiment has been improving with the higher oil prices and indications of progress toward addressing shortages of pipeline capacity. However, with transportation constraints persisting for oil in Western Canada, spending to expand production is expected to be restrained in the near term.

Chart 10: Firms in all regions expect capacity pressures to intensify

Contribution to balance of opinion,* quarterly data



* Percentage of firms responding to the *Business Outlook Survey* expecting more intense capacity pressures over the next 12 months minus the percentage of firms expecting less intense capacity pressures

Source: Bank of Canada

Last observation: 2018Q2

⁸ See the April 2018 *Monetary Policy Report*.

Export growth is expected to increase despite trade and competitiveness challenges

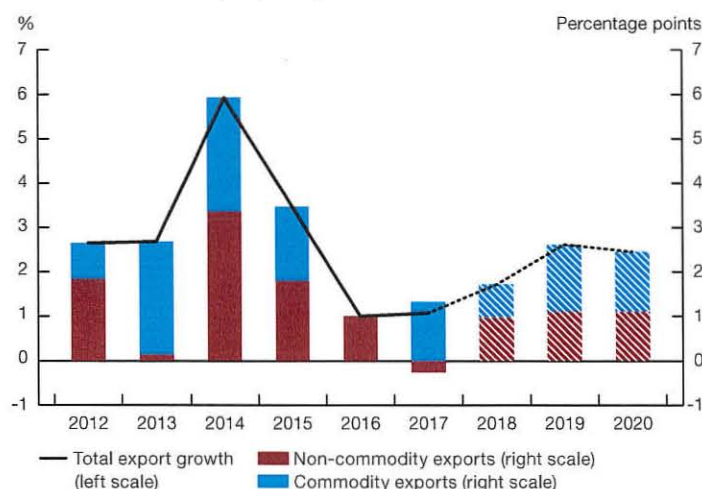
Export growth is expected to increase over the projection horizon, supported mainly by solid foreign demand growth and higher oil prices (Chart 11). The outlook would have been stronger were it not for the recently imposed tariffs and increased uncertainty associated with global trade policies. Growth prospects differ across sectors, in part because of the varying intensity of capacity constraints faced by firms.

Tariffs imposed by the US administration on imports of steel and aluminum from Canada are expected to subtract about 0.6 per cent from Canadian exports. Likewise, tariffs imposed by Canada on certain products imported from the United States are expected to subtract 0.6 per cent from Canadian imports (Box 2).

Buoyed by strong foreign demand, sectors that are planning to increase capital expenditures to expand capacity or innovate, such as machinery manufacturing and services, are expected to boost their exports.⁹ Some sectors will likely continue to face capacity constraints. Exports of many commodities, for example, are currently limited by transportation bottlenecks due to rail car shortages. These shortages are expected to abate over the coming year. Food manufacturing is also struggling with physical capacity issues, while difficulties recruiting skilled labour are more frequently reported by firms specializing in information and technology, industrial machinery, equipment and parts, and research and development.¹⁰

Chart 11: Export growth is projected to increase

Contribution to real export growth, annual data



Sources: Statistics Canada and Bank of Canada calculations and projections

⁹ Capital expenditure intentions are taken from Statistics Canada's Annual Capital and Repair Expenditures Survey.

¹⁰ In addition, some sectors face structural issues, such as difficulties sourcing raw materials and environmental and regulatory challenges that constrain their export opportunities.

The Bank continues to assume that competitiveness challenges will restrain export growth over the forecast horizon. This follows losses of competitiveness in recent years that were experienced in all categories of non-energy exports.¹¹

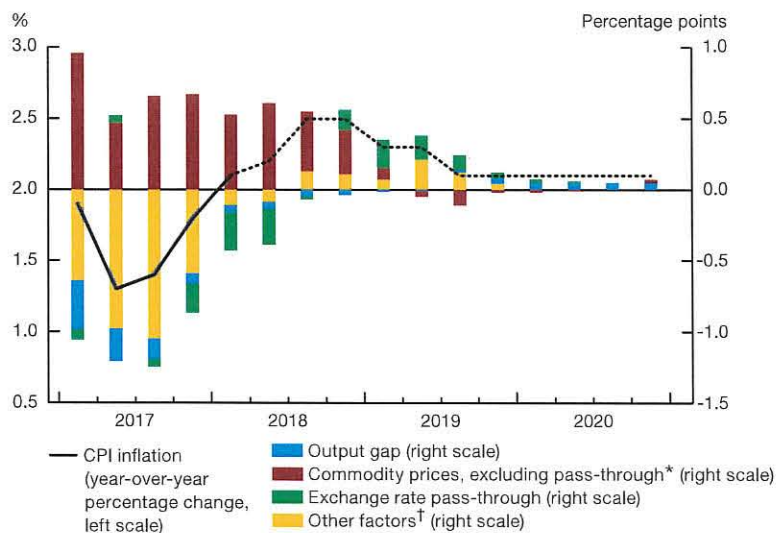
Growth of imports is expected to slow over the projection horizon, consistent with the moderation in the growth rate of final domestic demand and the tariffs imposed by Canada on certain US products.

Inflation is expected to be above 2 per cent temporarily

CPI inflation is projected to rise temporarily, reaching 2.5 per cent in the third and fourth quarters of 2018 before returning to about 2 per cent (Chart 12). Inflation is expected to be higher than 2 per cent owing to higher gasoline prices in recent months, the impact of minimum wage increases, newly imposed tariffs and exchange rate pass-through. The Bank estimates that tariffs levied by Canada on some products imported from the United States will temporarily boost inflation by about 0.1 percentage point (Box 2). Once prices have fully adjusted to incorporate the effects of these factors, the associated upward pressures on inflation will fade. Low food price inflation is expected to have a negative effect on CPI inflation until the first half of 2019. CPI inflation is expected to be close to 2 per cent from mid-2019 through the end of the projection horizon.

Chart 12: CPI inflation is expected to rise temporarily

Contribution to the deviation of inflation from 2 per cent, quarterly data



Note: Numbers may not add to total because of rounding.

* This also includes the effect on inflation of the divergence from the typical relationship between gasoline and crude oil prices, and the Alberta carbon levy. The cap-and-trade plan in Ontario also had a positive impact in 2017, but its recent removal is expected to weigh on inflation from mid-2018 to the second half of 2019.

† In 2017, other factors mostly represent the estimated impact of below-average inflation in food products and electricity rebates. In 2018, other factors mostly represent the estimated impact of minimum wage increases and of Canadian tariffs.

Sources: Statistics Canada and Bank of Canada estimates, calculations and projections

¹¹ For more details, see D. Brouillette et al., "What Is Restraining Canada's Non-Energy Export Growth?" Bank of Canada Staff Analytical Note (forthcoming); and N. Labelle St-Pierre, "Decomposing Canada's Market Shares: An Update," Bank of Canada Staff Analytical Note (forthcoming).

The base-case projection provides the Bank's view of the most likely outcome for inflation. Any projection is subject to considerable forecast uncertainty. A 90 per cent confidence band around the inflation projection widens from ± 0.6 percentage points in the third quarter of 2018 to ± 1.5 percentage points by the end of 2020.

The projection is consistent with medium- and long-term inflation expectations remaining well anchored. Most respondents to the summer *Business Outlook Survey* anticipate that inflation will remain within the Bank's target range of 1 to 3 per cent over the next two years. The majority expect inflation to be in the upper half of that range, consistent with the Bank's projection. The June 2018 Consensus Economics forecast for CPI inflation is 2.3 per cent in 2018 and 2.0 per cent in 2019, with long-term annual inflation expectations averaging 2.0 per cent through 2028.

Risks to the Inflation Outlook

The ongoing shift toward protectionist global trade policies remains the most important source of uncertainty surrounding the outlook. Related risks have broadened and intensified, although some aspects of these risks have been partially realized with the imposition of tariffs by the US administration and countermeasures by other countries. With respect to bilateral trade arrangements between the United States and Canada, the base-case projection incorporates the effects of the US tariffs on steel and aluminum imports from Canada and Canadian countermeasures. It also incorporates the effects of previously imposed US tariffs on Canadian softwood lumber and newsprint and those of trade policy uncertainty.

It is impossible to fully quantify the possible outcomes associated with changing trade policies without clarity about the actual measures and their timing. The range of possibilities is wide, and the channels through which the measures would affect the economy are complex.

In this context, the Bank assesses that the risks to the projected path for inflation are roughly balanced. As in past reports, the focus is on a selection of risks identified as the most important for the projected path for inflation, drawing from a larger set of risks accounted for in the projection. The evolution of risks since April is summarized in Table 5. The risk of weaker Canadian exports and investment has intensified since April.

(i) Weaker Canadian investment and exports

A broadening of US tariffs could pose a significant risk to Canadian economic activity. While the primary channel for such trade policy actions would be through reduced exports and imports, additional channels of transmission could be important. For industries that comprise a relatively large share of Canadian exports and with highly integrated cross-border supply chains, such as the auto sector, tariffs would have large impacts on investment and employment. Adverse effects on business and consumer confidence could lead to large negative spillovers on household spending and on business investment in other sectors of the economy. Moreover, an overall reduction in investment and dislocation of global value chains would have negative effects on productivity and potential growth. These effects would be mitigated by a depreciation of the Canadian dollar and possibly by government measures to support affected industries and workers. The direct effect of tariffs and exchange rate pass-through would immediately result in higher prices for some goods and reduce consumer purchasing power. In an economy already operating at capacity, this could lead to demands for higher wage increases and, in turn, put upward pressure on prices. In addition, there are two-sided

effects associated with the demand and supply implications of the tariffs. Weaker aggregate demand would weigh on price inflation, although reductions to potential output would work in the opposite direction.

(ii) **Sharp tightening of global financial conditions**

Global financial conditions remain broadly accommodative, but could tighten suddenly. Further escalation of trade tensions, a faster-than-anticipated pickup in wage and price inflation, or significant increases in expectations of the future path of monetary policy could lead to higher term premiums and equity risk premiums. If premiums were to rise, the higher bond yields could increase capital outflows from EMEs, exacerbating country-specific vulnerabilities in some cases, and financial conditions could tighten further. These developments could translate into a decline in activity in sectors sensitive to interest rates, a rise in debt-service burdens, weaker global and Canadian growth, and a decline in commodity prices.

(iii) **Stronger real GDP growth in the United States**

The outlook for US GDP growth in 2018 has been revised up following signs in recent data of greater-than-expected strength. However, growth over the projection horizon could be stronger if trade-related uncertainty diminishes or tax reform and deregulation trigger animal spirits. The resulting boost to investment, as well as stronger household spending, would have positive implications for Canadian investment and exports.

(iv) **Stronger consumption and rising household debt in Canada**

While consumption has been weaker than expected in the first quarter of 2018, persistently elevated consumer confidence could lead to even stronger consumer spending, with a savings rate that falls below the relatively high level embedded in the projection. The vulnerabilities associated with household indebtedness would be exacerbated if the additional spending were financed by more borrowing.

(v) **A pronounced decline in house prices in overheated markets in Canada**

While there has been some moderation in price growth and less speculative demand in the single-family home segment, prices for condominiums have continued to increase rapidly in some markets. Thus, there remains a risk of a sharp decline in house prices in overheated markets, which would likely dampen residential investment and consumption.

Table 5: Evolution of risks since the April 2018 Monetary Policy Report

Risk	What has happened	What is being monitored
Weaker Canadian investment and exports	<ul style="list-style-type: none"> Real goods exports grew by 1.2 per cent on average in the three months ending in May Uncertainty over the future of the North American Free Trade Agreement (NAFTA) has risen The United States ended exemptions on steel and aluminum tariffs for Canada, Mexico and the European Union; all three enacted countermeasures The US Department of Commerce launched a national security investigation into imports of motor vehicles and parts The United States imposed tariffs on US\$34 billion in imports from China and, following China's countermeasures, threatened to enact further trade-restrictive measures 	<ul style="list-style-type: none"> Foreign demand indicators Export market shares US business investment and other sources of demand for Canadian exports Trade policy developments and NAFTA renegotiations
Sharp tightening of global financial conditions	<ul style="list-style-type: none"> The US dollar has appreciated on a nominal effective basis Some emerging-market economies have experienced portfolio outflows Term premiums and risk premiums remain compressed by historical standards 	<ul style="list-style-type: none"> Long-term interest rates globally and in Canada Term-premium measures for bonds Wage and price inflation in advanced economies Capital flows
Stronger real GDP growth in the United States	<ul style="list-style-type: none"> Recent economic data have been stronger than expected Confidence indicators remain elevated, despite anecdotal evidence of firms deferring investment decisions due to trade-related uncertainty Productivity growth remains modest 	<ul style="list-style-type: none"> Business and consumer confidence Firm creation, investment and industrial production Labour force participation rate and labour productivity
Stronger consumption and rising household debt in Canada	<ul style="list-style-type: none"> Consumption growth slowed in 2018Q1 Retail sales have been roughly flat over the three months ending in April Motor vehicle sales have fallen slightly, but remain elevated The savings rate was revised up to 4.5 per cent in 2017Q4 and stands at 4.4 per cent in 2018Q1 The debt-to-disposable income ratio edged down in 2018Q1 as household credit growth continued to slow Consumer confidence ticked down in 2018Q2, but remains elevated 	<ul style="list-style-type: none"> Household spending Motor vehicle and retail sales Consumer sentiment Household indebtedness and savings behaviour
A pronounced decline in house prices in overheated markets in Canada	<ul style="list-style-type: none"> Residential investment fell sharply in 2018Q1 Housing starts rebounded strongly in Ontario in June, but continued to decrease in British Columbia Yearly house price growth has slowed since last year, mostly driven by a slowdown in Toronto, but house prices have picked up in recent months in most regions National resales edged down; British Columbia markets were soft, while Ontario numbers rose in May Mortgage credit growth slowed further to 3.5 per cent over the three months ending in May 	<ul style="list-style-type: none"> Housing activity and prices Household spending Regulatory environment Residential mortgage credit

Exhibit 3 - Figure 2 - data and calculations

Date	10 year	long-term	LT-10-year	BEIR (LT - RRB)
2004-01	4.61	5.23	0.62	2.66
2004-02	4.41	5.09	0.68	2.53
2004-03	4.33	5.04	0.71	2.65
2004-04	4.71	5.31	0.6	2.85
2004-05	4.77	5.32	0.55	3
2004-06	4.83	5.33	0.5	2.96
2004-07	4.82	5.29	0.47	2.98
2004-08	4.68	5.15	0.47	2.93
2004-09	4.58	5.04	0.46	2.72
2004-10	4.52	5	0.48	2.72
2004-11	4.44	4.9	0.46	2.73
2004-12	4.39	4.92	0.53	2.81
2005-01	4.21	4.74	0.53	2.71
2005-02	4.28	4.76	0.48	2.69
2005-03	4.39	4.77	0.38	2.69
2005-04	4.14	4.59	0.45	2.67
2005-05	4.02	4.46	0.44	2.6
2005-06	3.81	4.29	0.48	2.42
2005-07	3.91	4.31	0.4	2.38
2005-08	3.78	4.12	0.34	2.39
2005-09	3.94	4.21	0.27	2.57
2005-10	4.16	4.37	0.21	2.67
2005-11	4.06	4.18	0.12	2.53
2005-12	3.93	4.02	0.09	2.58
2006-01	4.11	4.2	0.09	2.66
2006-02	4.1	4.15	0.05	2.71
2006-03	4.23	4.23	0	2.64
2006-04	4.52	4.57	0.05	2.78
2006-05	4.45	4.5	0.05	2.67
2006-06	4.63	4.67	0.04	2.77
2006-07	4.38	4.45	0.07	2.65
2006-08	4.12	4.2	0.08	2.59
2006-09	3.98	4.07	0.09	2.41
2006-10	4.17	4.24	0.07	2.46
2006-11	3.94	4.02	0.08	2.39
2006-12	4.05	4.1	0.05	2.37
2007-01	4.17	4.22	0.05	2.43
2007-02	4.03	4.09	0.06	2.34
2007-03	4.1	4.21	0.11	2.44
2007-04	4.15	4.2	0.05	2.44
2007-05	4.48	4.39	-0.09	2.37

2007-06	4.62	4.56	-0.06	2.41
2007-07	4.58	4.49	-0.09	2.4
2007-08	4.38	4.44	0.06	2.29
2007-09	4.41	4.5	0.09	2.35
2007-10	4.31	4.38	0.07	2.33
2007-11	4.07	4.23	0.16	2.09
2007-12	4.09	4.18	0.09	2.19
2008-01	3.88	4.19	0.31	2.21
2008-02	3.81	4.18	0.37	2.24
2008-03	3.46	3.96	0.5	2.29
2008-04	3.58	4.08	0.5	2.36
2008-05	3.68	4.12	0.44	2.55
2008-06	3.71	4.05	0.34	2.6
2008-07	3.81	4.16	0.35	2.56
2008-08	3.52	4.01	0.49	2.48
2008-09	3.66	4.13	0.47	2.07
2008-10	3.74	4.27	0.53	1.78
2008-11	3.36	3.94	0.58	1.26
2008-12	2.69	3.45	0.76	1.35
2009-01	2.97	3.72	0.75	1.46
2009-02	2.95	3.69	0.74	1.5
2009-03	2.96	3.74	0.78	1.74
2009-04	3.08	3.82	0.74	1.81
2009-05	3.57	4.19	0.62	1.85
2009-06	3.45	3.91	0.46	2
2009-07	3.53	4.05	0.52	2.16
2009-08	3.39	3.9	0.51	2.08
2009-09	3.31	3.84	0.53	2.1
2009-10	3.45	3.96	0.51	2.33
2009-11	3.25	3.85	0.6	2.29
2009-12	3.6	4.07	0.47	2.55
2010-01	3.35	3.96	0.61	2.41
2010-02	3.45	4.05	0.6	2.46
2010-03	3.56	4.07	0.51	2.51
2010-04	3.66	4.04	0.38	2.5
2010-05	3.25	3.68	0.43	2.24
2010-06	3.08	3.65	0.57	2.23
2010-07	3.22	3.77	0.55	2.22
2010-08	2.83	3.47	0.64	2.07
2010-09	2.74	3.33	0.59	2.16
2010-10	2.89	3.5	0.61	2.33
2010-11	3.19	3.65	0.46	2.35
2010-12	3.16	3.54	0.38	2.42
2011-01	3.31	3.75	0.44	2.4
2011-02	3.32	3.75	0.43	2.44

2011-03	3.29	3.72	0.43	2.59
2011-04	3.27	3.74	0.47	2.69
2011-05	3.08	3.5	0.42	2.51
2011-06	3.09	3.53	0.44	2.49
2011-07	2.88	3.35	0.47	2.51
2011-08	2.49	3.1	0.61	2.22
2011-09	2.19	2.83	0.64	1.95
2011-10	2.38	3.02	0.64	2.17
2011-11	2.15	2.69	0.54	2.08
2011-12	1.96	2.5	0.54	2.03
2012-01	2.04	2.64	0.6	2.11
2012-02	1.98	2.6	0.62	2.16
2012-03	2.12	2.67	0.55	2.15
2012-04	2.1	2.65	0.55	2.06
2012-05	1.79	2.33	0.54	1.96
2012-06	1.72	2.32	0.6	1.9
2012-07	1.6	2.22	0.62	1.89
2012-08	1.8	2.37	0.57	1.97
2012-09	1.75	2.33	0.58	1.98
2012-10	1.78	2.38	0.6	2
2012-11	1.72	2.3	0.58	1.96
2012-12	1.82	2.37	0.55	1.99
2013-01	1.99	2.57	0.58	2.03
2013-02	1.86	2.53	0.67	2.01
2013-03	1.76	2.49	0.73	2.01
2013-04	1.72	2.38	0.66	1.96
2013-05	2.07	2.65	0.58	1.97
2013-06	2.5	2.96	0.46	1.84
2013-07	2.45	2.97	0.52	1.95
2013-08	2.63	3.09	0.46	1.99
2013-09	2.57	3.09	0.52	1.93
2013-10	2.42	3.01	0.59	1.97
2013-11	2.54	3.14	0.6	1.96
2013-12	2.72	3.2	0.48	1.98
2014-01	2.36	2.94	0.58	1.95
2014-02	2.44	2.96	0.52	2
2014-03	2.45	2.96	0.51	2.06
2014-04	2.4	2.93	0.53	2.01
2014-05	2.22	2.76	0.54	2
2014-06	2.26	2.82	0.56	2.04
2014-07	2.16	2.7	0.54	2.07
2014-08	2	2.57	0.57	1.97
2014-09	2.2	2.73	0.53	1.98
2014-10	2.05	2.59	0.54	1.91
2014-11	1.93	2.48	0.55	1.87

2014-12	1.79	2.33	0.54	1.71
2015-01	1.35	1.93	0.58	1.7
2015-02	1.32	1.95	0.63	1.82
2015-03	1.33	1.97	0.64	1.82
2015-04	1.59	2.19	0.6	1.81
2015-05	1.67	2.25	0.58	1.72
2015-06	1.77	2.38	0.61	1.77
2015-07	1.52	2.2	0.68	1.72
2015-08	1.45	2.2	0.75	1.42
2015-09	1.45	2.21	0.76	1.52
2015-10	1.47	2.26	0.79	1.46
2015-11	1.59	2.29	0.7	1.54
2015-12	1.4	2.16	0.76	1.49
1/1/2016	1.24	2.05	0.81	1.37
2/1/2016	1.15	1.93	0.78	1.33
3/1/2016	1.22	2	0.78	1.51
4/1/2016	1.5	2.06	0.56	1.6
5/1/2016	1.38	2.01	0.63	1.54
6/1/2016	1.12	1.76	0.64	1.4
7/1/2016	1.07	1.69	0.62	1.36
8/1/2016	1.02	1.63	0.61	1.41
9/1/2016	0.98	1.64	0.66	1.46
10/1/2016	1.15	1.82	0.67	1.57
11/1/2016	1.58	2.16	0.58	1.81
12/1/2016	1.73	2.34	0.61	1.76
1/1/2017	1.82	2.45	0.63	1.75
2/1/2017	1.71	2.42	0.71	1.72
3/1/2017	1.59	2.28	0.69	1.62
4/1/2017	1.48	2.16	0.68	1.59
5/1/2017	1.41	2.05	0.64	1.56
6/1/2017	1.61	2.06	0.45	1.48
7/1/2017	1.96	2.35	0.39	1.61
8/1/2017	1.84	2.27	0.43	1.57
9/1/2017	2.13	2.49	0.36	1.66
10/1/2017	2.04	2.38	0.34	1.62
11/1/2017	1.88	2.23	0.35	1.63
12/1/2017	1.98	2.2	0.22	1.68

Correlation 0.986744
(Long/10)

Average	2.92	3.39	0.47	2.13
Median	2.97	3.54	0.53	2.09

StDev	1.12	0.99	0.21	0.42
Max	4.83	5.33	0.81	3.00
Min	0.98	1.63	-0.09	1.26

<https://www.bankofcanada.ca/rates/interest-rates/selected-historical-interest-rates/>
<https://www.bankofcanada.ca/rates/interest-rates/lookup-bond-yields/>



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PROVINCIAL OUTLOOK EXECUTIVE SUMMARY.

Provincial Outlook Executive Summary: Summer 2018

The Conference Board of Canada

Preface

The *Provincial Outlook Economic Forecast* was prepared by Marie-Christine Bernard, Director, under the general direction of Pedro Antunes, Deputy Chief Economist.

The report examines the economic outlook for the provinces, including gross domestic product (GDP), output by industry and labour market conditions. At the end of the report, there is a forecast for Canadian economic indicators and a comparison of GDP by province and industry.

The outlook is updated quarterly using the Conference Board's large econometric model of the provincial economies.

The publication can be accessed on-line at www.e-library.ca and for clients subscribing to e-Data at www.conferenceboard.ca/edata.htm. For more information, please contact our information specialist at 613-526-3280 or 1-866-711-2262 or e-mail contactcboc@conferenceboard.ca.

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CONTENTS

EXECUTIVE SUMMARY

1	Weaker Economic Performances
2	National Overview
2	Provincial Overview
9	U.S. Outlook
11	Monetary Policy
13	Fiscal Outlook
13	Newfoundland and Labrador
14	Prince Edward Island
16	Nova Scotia
17	New Brunswick
19	Quebec
20	Ontario
21	Manitoba
23	Saskatchewan
25	Alberta
26	British Columbia

Appendix A

28	Forecast Tables
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Acknowledgements

The article was written by Marie-Christine Bernard, Director, and the provincial forecasting team.

EXECUTIVE SUMMARY

Weaker Economic Performances

At a Glance

- High debt levels, rising interest rates, and a correction in the housing market are weighing on economic growth in Canada.
- Most provinces will see their economic performance weaken over the near term.
- New regulations in the housing sector have slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the resource sector recession hit in 2015.
- Despite trade issues, private investment, mainly in machinery and equipment, has been picking up across the country.
- The strongest economic performances next year are forecast for Newfoundland and Labrador and Prince Edward Island.
- There are risks to the outlook, the recent announcement in the uranium sector will lead to more layoffs in Saskatchewan and lower uranium production.
- There is renewed interest in investment in Alberta's energy sector and the province is primed for private investment growth next year, but no large-scale, multi-phase, multi-billion oil sands capital projects are planned at the moment.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

National Overview

The economy expanded at an annual pace of just 1.3 per cent in the first quarter of 2018 as consumer spending softened, the trade sector continued to perform poorly, and the housing sector weakened in response to recent policy changes. One piece of good news was that Canadian companies largely shrugged off concerns about NAFTA and new tariffs and boosted their investment in plants and equipment substantially. The recent increases in business investment are overdue and will go a long way toward easing record-high capacity utilization levels across many sectors of the Canadian economy.

Over the next two years, we expect consumer spending growth to continue to fall as households reduce their pace of borrowing in the face of higher interest rates and slower job growth. Lower home prices will also impact spending, as households will be less willing to borrow against their homes. In the trade sector, export growth will be limited by recently enacted tariffs on softwood lumber, steel, and aluminum. The potential collapse of NAFTA and daily threats of new tariffs across a wide range of goods, including autos and parts, will also weigh on exporters' investment decisions and limit a return to solid growth in the near future. Overall, we project that the Canadian economy will grow by 1.8 per cent in both 2018 and 2019, down from of a 3.0 per cent gain last year.

Provincial Overview

As we entered the second half of this year, nearly all provinces were contending with weaker economic growth. Job creation stalled in the first half of the year, mainly in the service sector, with Quebec and British Columbia bearing the brunt of the weakness there. In addition, new

regulations in the housing sector slowed new home construction in many provinces, and retail sales declined in the first quarter for the first time since the recession in the resource sector hit in 2015.

While the sluggish labour market conditions were not widespread, the pullback in consumer demand was visible across the country. But with stronger energy prices, inflation has been accelerating, as year-over-year gasoline prices are up by close to 25 per cent. As well, minimum wage increases, particularly the one in Ontario, are adding to wage costs in the food industry and boosting restaurant food prices. On July 11, the Bank of Canada raised its key interest rate for the fourth time in a year. Further increases are expected, but not until next year. While inflation is high on the Bank of Canada's radar, the Bank's governor, Stephen Poloz, is also keeping an eye on the unsettled NAFTA trade negotiations and the impacts that the new U.S. tariffs on steel and aluminum and rising global trade protectionism could have on the economy. The trade tensions bring considerable instability to the economy, with U.S. president Donald Trump ratcheting up his rift with his country's main trading partners, including Canada. Tariffs on steel and aluminum aren't likely to derail Canadian economic growth, but tariffs on autos and parts would be far more detrimental to economic growth and employment. Still, despite the trade conflicts that the Trump administration has fired up, global stock markets have remained generally calm.

As well, a positive trend started early in 2017—businesses are purchasing more machinery and equipment in order to raise their productive capacity and competitiveness. This trend emerged despite trade issues weighing on business investment decisions. Trade uncertainties are detrimental to business investment, but those uncertainties are being overridden by high capacity utilization rates and a booming U.S. economy, both of which are encouraging firms to upgrade and expand their equipment.

While the Canadian economy grew at a much weaker pace in the last quarter of 2017 and the first half of this year, the second half of 2018 is expected to be more stable, and that stability should continue through

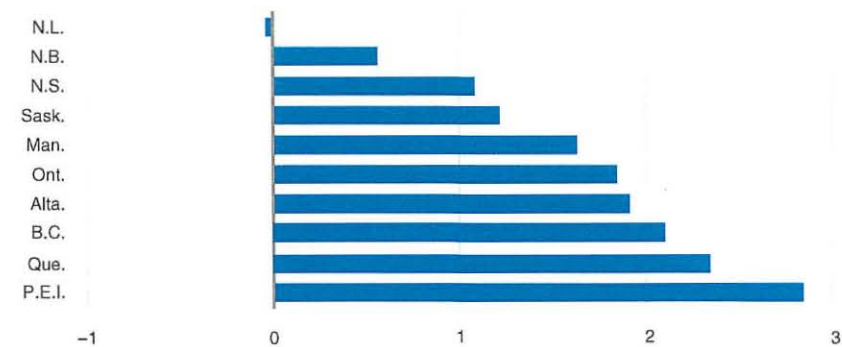
PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

2019 as well. While the various major trade negotiations are still unresolved, other key indicators have been more encouraging in recent months.

Smaller provinces will take the lead in economic growth next year, with Newfoundland and Labrador and Prince Edward Island both expected to outpace the national average. Quebec, Ontario, and Alberta are expected to average less than 2 per cent growth in 2019, while British Columbia is forecast to continue to outpace the national average, growing by more than 2 per cent. The outlook for New Brunswick and Nova Scotia mirrors the outlook for faint growth in the labour force, with only modest economic growth forecast over the near term due to the aging of their workforces, which more than offsets the positive impact of the progress made in attracting newcomers to the region.

(See charts 1 and 2.)

Chart 1
Real GDP by Province, 2018
(percentage change*)

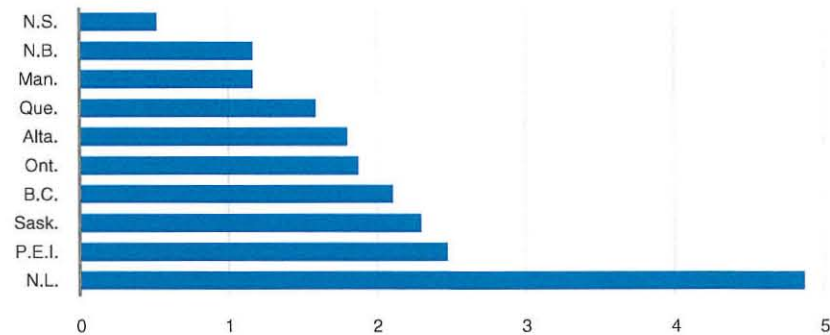


*based on 2007 \$
Sources: The Conference Board of Canada; Statistics Canada.

Chart 2

Real GDP by Province, 2019

(percentage change*)



*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

Provincial Assumptions

Economic growth will essentially stall this year in Newfoundland and Labrador. The provincial economy is being held back by weakening construction, a sharp drop in fishing and sub-par wholesale and retail trade activity. The start of oil production late last year at the province's fourth major oil project, Hebron, should be a big source of optimism. But production interruptions at other offshore oil fields will limit the oil sector's contribution to the economy. Still, rising oil production at Hebron will help push overall real GDP growth in the province to 4.9 per cent in 2019. Fundamentally, the Newfoundland and Labrador economy will struggle as the wrapping up of major construction projects hurts workers' job prospects and weakens consumer demand. On a positive note, a recent agreement between the provincial government and two international companies to develop the province's first deep-water production project—the \$6.8-billion Bay du Nord initiative—is good news for the province.

Prince Edward Island will be the only province that will maintain its economic momentum this year. For a second consecutive year, Canada's smallest province will grow strongly, expanding by 2.8 per cent and outpacing all other provinces. Central to this solid economic performance is the Atlantic Growth Strategy, which helped to raise the number of newcomers and fuel consumer demand for housing and retail goods. In

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

addition, the favourable conditions for tourism are helping to stimulate growth on the Island, as more and more passenger cruise ships visit the Island. Overall, real GDP growth is forecast to inch down a few notches to 2.5 per cent in 2019 as a less-accommodative monetary policy cools consumers' appetite for big-ticket items.

Nova Scotia will improve its economic performance slightly this year, growing by 1.1 per cent. Positive contributors include an expanding housing market, healthy job creation, a strong showing on the immigration front, and solid consumer demand. Limiting economic growth is the winding down of natural gas production in the province. Mineral fuel production had been a source of economic activity for decades, and until someone starts up a new venture, there will be no mineral fuel production in the province at all. Exploration, however, is recovering. BP Canada's Scotian Basin Exploration Project could see up to seven exploration wells drilled off the southeast coast of Nova Scotia—some welcome news for the industry and possibly leading to a new development down the road. Economic growth will slow to just 0.5 per cent next year as manufacturing contributes less to bottom-line growth.

New Brunswick economy has lost some of its momentum. It is forecast to grow by 0.6 per cent in 2018 and 1.2 per cent in 2019, compared with growth of 1.7 per cent in 2017. Retail sales and housing starts have been easing quickly. As well, while manufacturing provided a boost to the economy last year, more moderate increases in petroleum and coal product refining mean that manufacturing will not do much to shore up bottom-line growth this year or next. Labour market conditions have been improving, as net international immigration is still elevated and adding to the workforce. But the number of retirements is rising fast and offsetting the positive contribution from newcomers.

As Quebec prepares for a provincial election on October 1, the province's economy continues to perform well. On the heels of the best economic performance in nearly two decades last year, Quebec's economy will outpace the national average in 2018, advancing by 2.3 per cent. However, the momentum will fade, as economic growth is expected to ease to 1.6 per cent in 2019. The U.S. tariffs on aluminum are bad news for Quebec's massive aluminum industry. But while trade

worries will be a drag on the economy, it is easing consumer demand that will be mostly responsible for the loss of momentum in the economy. Rising interest rates and lower housing construction will take a bite out of consumer spending next year. Housing starts have been flirting with record-high levels in recent months, but that is not sustainable given Quebec's softer demographics and resulting weaker requirements. We expect housing starts to decline from 48,716 units in 2018 to 42,747 units in 2019.

Also being hurt by the new stress test regulations for home purchases is the Ontario economy, which has shifted into a lower gear and is forecast to grow by 1.8 per cent this year and 1.9 per cent in 2019. Residential investment is forecast to contract by 7.3 per cent in 2018, the biggest pullback since the 2008–09 recession. The housing market is adjusting to the new measures. Consumers have also pulled back considerably on their purchases of goods, and that is a contributing factor to the weaker economic prospects over the near term. The weakness on the consumer side of the economy masks the solid growth in other private investments. New commercial projects in the Greater Toronto area and strong machinery and equipment investment are forecast to push up real business investment (excluding residential) by 8.6 per cent this year and 4.4 per cent in 2019. The trade sector provides considerable risk to the economic outlook, mainly in the form of Trump's trade strategies and his threat toward the auto industry. More stringent requirements for the auto industry have not been factored into our economic outlook but do present downside risks.

The forecast for Manitoba is influenced greatly by the development of two major power projects—the Bipole III transmission line and the Keeyask generating station. Construction will continue to grow rapidly in 2018, thanks to these projects as well as to the building of the Roquette pea-processing plant. Overall, real GDP in Manitoba is expected to grow by 1.6 per cent in 2018. Next year, however, with development of the Keeyask station moving along and Bipole III expected to be completed, overall real GDP growth will cool. In addition, the planned shutdown of metal mines will hit economic growth over the next few years. The provincial economy is expected to grow by just 1.2 per cent in 2019.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

President Trump also has uranium on his radar and could impose tariffs on that commodity as well. Saskatchewan is the number one supplier to the U.S. of uranium, which is mainly used in nuclear power generation. The uranium industry has struggled in recent years, as a collapse of demand in Japan following the 2011 Fukushima Daiichi nuclear disaster led to global oversupply and low prices. Saskatoon-based uranium giant Cameco has cut back on production in Saskatchewan, leading to job losses and helping to keep overall growth in real GDP to just 1.2 per cent this year. The domestic economy has yet to recover fully from the resource sector crash that led to a recession in the province in 2016. But with improved commodity prices and stronger global demand in a number of key sectors, we expect a turnaround in the domestic economy. However, the recent announcement that the indefinite shutdowns of the McArthur River and Key Lake uranium mines are to be prolonged is bad news. This was not factored into our forecast of 2.3 per cent real GDP growth for Saskatchewan next year. As such, growth is at risk of coming in lower than we projected.

Alberta's economic growth has been easing over the last few quarters. But, generally, the provincial economy is still performing well and has nearly fully recovered from the worst recession to hit the province in the last half century. Job creation is accelerating, and the unemployment rate is falling. Wage growth remains modest relative to the gains in other provinces. Higher borrowing costs are cooling the domestic economy. Oil production is growing at a strong pace, the federal government has purchased Kinder Morgan's Trans Mountain project, and there is renewed interest in investing in the energy sector. But no large-scale oil sands capital projects are planned at this point. All in all, Alberta's real economic growth is expected to average 1.9 per cent in 2018 and 1.8 per cent in 2019.

British Columbia's economy is losing speed and is forecast to grow by a much weaker 2.1 per cent in 2018 and again in 2019, down from average growth exceeding 3 per cent since the start of the decade. The bulk of the weakness is coming from a job market that is running out of fuel, a sharp correction in the housing market, and much weaker consumer demand. The measures put in place to address runaway housing prices and affordability issues have taken the shine off the housing market,

especially for sales of much pricier, existing single-detached homes. Home resale activity was down by more than 20 per cent in the first half of this year compared with 2017. Housing starts have been falling as well, but not at such a dramatic pace.

U.S. Outlook

The U.S. economy expanded at a 2.2 per cent annual pace in the first quarter of this year and then accelerated sharply to 4.1 per cent in the second quarter. For this year as a whole, we expect growth in U.S. real GDP to come in at about 3.0 per cent. (See Chart 3.) Next year, the economy will maintain its momentum, as a gain of 2.7 per cent is anticipated. The U.S. economy is currently benefiting from the fiscal stimulus provided by tax cuts and higher government spending. Tightening labour markets have started to boost wages, which should support household spending over the near term. Real spending is expected to increase by 2.5 per cent this year and 2.4 per cent in 2019.

However, there are a few developments that pose downside risks to our outlook for the U.S. economy. Last December, average gasoline prices in the U.S. were less than \$2.50 per gallon. Since then, they have increased to more than \$3 per gallon, while in states such as California prices are around \$4 a gallon. Higher world oil prices are the main culprit. They have been pushed higher by a variety of factors, including OPEC production cuts, reduced supply from Venezuela, and the uncertain situation concerning oil shipments from Iran now that the U.S. has decided to walk away from the Iran nuclear weapons agreement that it had signed with its European partners and Tehran. If gasoline prices average \$3 or more for the remainder of the year, a good part of the stimulus to the economy attributable to tax cuts will be negated.

The off-again-on-again trade war appears to be back on. In late May, the Trump administration imposed a 25 per cent tariff on imported steel and a 10 per cent tariff on imported aluminum from Mexico, the European Union, and Canada. The three U.S. trade partners quickly retaliated by putting tariffs on many U.S. exports. While the immediate consequence for the U.S. economy will be minimal, consumers will have

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

to pay higher prices for food and cars if the trade war escalates. Many trade analysts contend that President Trump is using the tariffs as a means of intensifying the pressure on Canada and Mexico during the NAFTA negotiations. Concerns about a global trade war ratcheted up even higher in June when the U.S. president imposed a 25 per cent tariff on \$50 billion worth of imports of Chinese goods. The direct impact on the economy will be minor, as the tariffs cover less than 10 per cent of total U.S. imports from China and around 2 per cent of all U.S. imports. The effect on core U.S. inflation is less than 0.1 per cent. However, of far greater concern is the retaliation from China. Following the U.S. actions, the Chinese government backed out of an earlier agreement to purchase \$70 billion of U.S. goods and promised to put tariffs on about \$34 billion worth of U.S. exports to China. The Trump administration countered by threatening even more tariffs on Chinese exports. At present, neither side appears willing to back down, and a full-blown trade war cannot be ruled out.

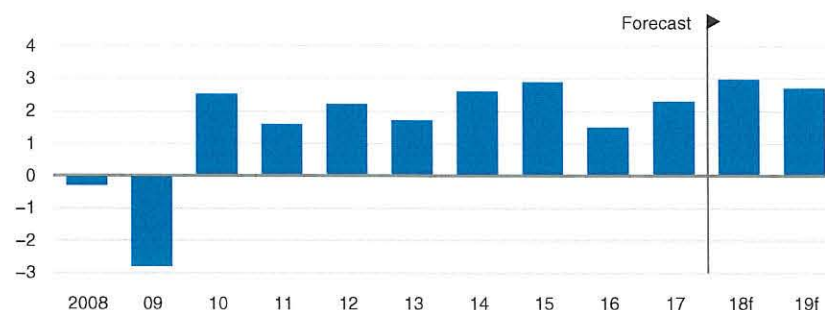
The other factor that could dampen U.S. growth is the rapid increase in labour shortages. In an economy with an unemployment rate below 4.0 per cent, shortages of available workers are quickly becoming a reality for many U.S. firms. The National Federation of Independent Business recently reported that around one-third of small businesses today have posted job openings—a level not seen since the tech boom in the late 1990s.

Tightening labour markets are finally translating into wage gains, something that had been absent since 2009 when the economy started to slowly recover from the severe recession. Wages are currently expanding in the 3.0 per cent range, or close to double the average seen since 2009. The hope is that the combination of record job openings and rising wages will entice more people to join the workforce and thereby ease the labour shortages. However, the Trump administration's anti-immigration stance is hurting growth in an important source of labour supply at this time of record-low unemployment. Two of President Trump's most high-profile domestic policies are currently working against each other. His fiscal stimulus is boosting demand for workers, but the restrictions on immigrants are hurting labour supply and making it difficult for firms to find workers.

Chart 3

Tax Cuts Fuelling Growth in U.S. Economy

(real GDP, percentage change)



f = forecast

Sources: The Conference Board of Canada; U.S. Bureau of Economic Analysis.

Monetary Policy

While economic growth in Canada is expected to slow over the next two years, capacity pressures continue to brew, suggesting that the Bank of Canada should consider increasing interest rates at a more aggressive pace. While monetary authorities will tolerate the inflation rate drifting somewhat above the target range, wage growth has accelerated to a pace above 3.0 per cent as labour markets in Canada have continued to tighten. The unemployment rate is hovering around 6.0 per cent and is projected to fall to an all-time low of 5.7 per cent by year-end. Higher wages will eventually feed into inflation.

Despite capacity pressures and rising inflation, we expect no further rate hikes by the Bank of Canada this year following the 25 basis-point increases in January and July. (See Chart 4.) Although we expect three further rate increases in 2019, there is some downside risk to this outlook, given the great degree of uncertainty in the economy—in particular, the potential for a quickly escalating global trade war. Canada, Mexico, and the EU have all retaliated against U.S. steel and aluminum tariffs, while President Trump has promised to take further steps to limit imports that he claims are harmful to the U.S. economy. On several occasions, the U.S. president has threatened to impose 25 per cent tariffs on imports of autos and parts. In addition, the NAFTA

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

renegotiations have bogged down due to disagreements concerning the domestic content of autos produced in North America and the U.S. demand for a sunset clause for any new NAFTA deal. Further tariffs on Canadian goods, especially on autos and parts, could have a devastating impact on the Canadian economy.

While the Canadian dollar is getting some support from the recent strength in oil prices, it is under pressure due to a combination of the rising spread between Canadian and U.S. interest rates and the increasing uncertainty over global trade. At the beginning of this year, the loonie was trading in the US\$0.79–0.80 range as the U.S. dollar came under selling pressure due to concerns about rising fiscal deficits. However, the uncertainty over NAFTA negotiations and the different paths of monetary policy in the two countries caused the loonie to depreciate recently to the US\$0.75 range. The Canadian dollar will generally trade in this range until the second half of 2019 when it will start to appreciate gradually as interest rate increases accelerate. We do not expect the loonie to return to the US\$0.80 mark until sometime in 2022. Even that modest outlook for the Canadian dollar is contingent upon there being a marked reduction in the trade tensions that currently exist in the global economy.

Chart 4

Bank of Canada to Hike Again in 2019

(per cent)



f = forecast

Sources: The Conference Board of Canada; Bank of Canada

Fiscal Outlook

While last year's strong economic growth propelled a notable pickup in government revenues, government spending growth also accelerated, resulting in no notable improvement in either the federal or collective provincial budget deficits. This year, the expected slowdown in economic growth will result in softer gains in government revenues, which will challenge government balances. At the federal level, we project a deficit of \$19.8 billion this year. While the deficit should shrink over the next few years, the pace of improvement will be slow. Provincial deficits are likely to widen considerably this year, and we anticipate only a slight narrowing over the next few years.

While running operating shortfalls when the economy is near its peak is not ideal, the spending by the federal and provincial governments will help stimulate economic growth over the near term. The most notable boost will be from public infrastructure investment.

Newfoundland and Labrador

New Opportunities in the Oil Industry

Newfoundland and Labrador's economic prospects are uneven. No real GDP growth is forecast this year as big declines in fishing, construction, and consumer demand weigh on the economy. But real GDP growth is forecast to jump to 4.9 per cent next year. That will place Newfoundland and Labrador at the head of the provincial pack in 2019. The strong growth will be led by the ramping up of oil production at Hebron (see Chart 5), where pumping is already ahead of schedule. Oil production from the project averaged 13,500 barrels per day over the second quarter of this year and will continue to increase before reaching full capacity next year. The good news for the oil industry does not stop there. The provincial government recently came to an agreement with two international companies to develop what would be the province's first deep-water production project, the \$6.8-billion Bay du Nord initiative. A final decision by the companies on whether to go ahead is not expected for a few years, but there will be further exploration and development work in the meantime.

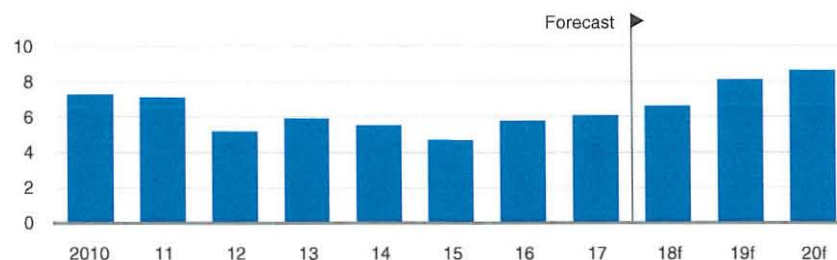
PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

Despite rising oil production, the domestic economy remains fundamentally weak. Business investment is on a downward slide as major projects, such as the Muskrat Falls hydro project, approach the end of their construction phase. The biggest challenges facing the province are the dynamics in the labour force. The unemployment rate will hold steady at 15.1 per cent next year, but that will come despite almost 1,000 people leaving the labour force and there being more than 1,700 fewer people employed in the province. Newfoundland and Labrador is the only province with an unemployment rate in the double-digits. This is particularly worrisome given that it is also the province with the oldest population and that it continues to see its workforce shrink and its tax base erode.

Chart 5

N.L. Mineral Fuels to Grow Strongly

(mineral fuels, 2007 \$ billions)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Prince Edward Island

Prince Edward Island Set to Lead Canada

Positive news abounds for Prince Edward Island, as it is expected to lead the provinces in economic growth over the next two years. Impressively, this run of solid economic growth is underpinned by sound fundamentals, including strong population gains through immigration, a booming tourism industry, and elevated demand for P.E.I. products. Economic growth in Prince Edward Island has been strong in recent years, boosting

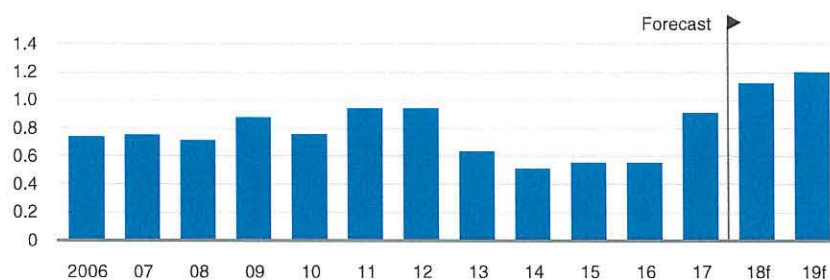
government revenues to the point that the province was able to balance its budget for the first time in a decade last fiscal year, and it expects to post a bigger surplus this year. A balanced budget will provide the province with some much-needed fiscal wiggle-room at a time when fiscal challenges—including population aging (which is raising demand for government services) and rising interest rates (which are adding pressure to debt repayment charges)—also abound. Despite the challenges, the current hot streak of economic growth on the Island should keep the province in its newfound surplus position over the near term.

One of the biggest factors behind the recent economic growth on the Island is international migration. The influx of these new citizens is the driving force behind the population gains seen on the Island, with the impacts being felt across the province. One result has been a boom in the housing market, which in turn is leading to higher construction activity. (See Chart 6.) The population growth is also providing a boost for retail sales. At the same time, tourism continues to play a growing role in the Island's economy. The high levels of visitors will encourage further spending on local products, benefiting the food and accommodation industry. Additionally, with high demand for P.E.I. products expected to continue, manufacturing activity on the Island will continue to flourish. Overall, real GDP on the Island is expected to grow 2.8 per cent this year and 2.5 per cent in 2019.

Chart 6

Strong Immigration Leads to Housing Market Boom in P.E.I.

(housing starts, 000s)



f = forecast

Source: Conference Board of Canada; CMHC Timeseries Database.

Nova Scotia

Weaker Growth Ahead for Nova Scotia

Nova Scotia's economic growth will improve slightly this year. Overall, real GDP is forecast to grow by 1.1 per cent. However, economic growth will slow to just 0.5 per cent in 2019.

Prospects in the primary sector are bleak, as both offshore natural gas operations are expected to shut down completely in the next few months. Growth in the manufacturing sector is expected to slow to 0.5 per cent next year, further weighing on GDP growth.

Nova Scotia's job market has been growing steadily over the past few months. Combined with healthy wage gains, the increase in jobs has led to strong growth in household consumption. However, going forward, labour markets will struggle as a growing number of aging workers retire from the labour force. Household consumption is forecast to remain flat this year and grow by 0.5 per cent next year.

Growth in real business investment is forecast to fall from 2.4 per cent this year to 1.2 per cent in 2019, as residential and machinery and equipment investment weakens. The lower value of the Canadian dollar and uncertain trade relations with the United States pose important risks to the business investment climate. Mitigating this uncertainty is the capital spending required to plug offshore natural gas wells.

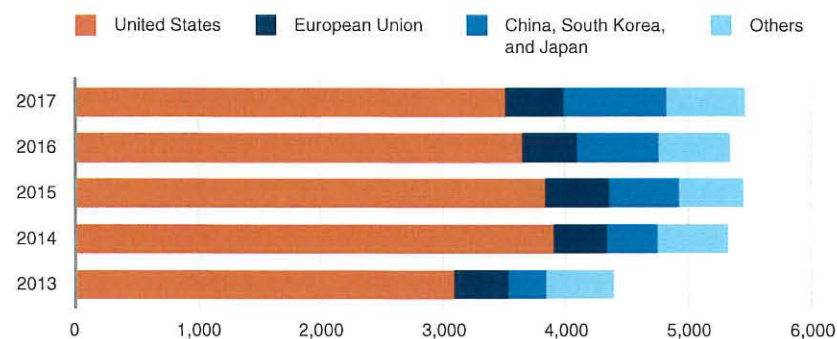
Despite trade uncertainty with the United States, exports are forecast to increase by 1.5 per cent this year and 1.7 per cent next year thanks to the implementation of the Comprehensive Economic and Trade Agreement with the European Union. Better conditions for the fishing sector are also expected to help on the export front. (See Chart 7.)

To maintain its modest budget surplus, the Nova Scotia government is expected to avoid any significant increases in program spending or major personal or corporate tax changes. Growth in non-commercial services, which takes into account activity in the education and health care and social services sectors, is expected to remain flat as of next year, as the implementation period of the universal pre-primary education program is completed.

Chart 7

Nova Scotia's Export Destinations

(\$ 000s)



Sources: The Conference Board of Canada; Statistics Canada.

New Brunswick

Lack of Workforce Growth Will Slow Economic Growth

Following stronger economic growth in 2017, New Brunswick's economy is expected to grow by just 0.6 per cent this year. Real GDP is forecast to advance by 1.2 per cent next year.

The main factor behind the more modest outlook is the province's workforce. Atlantic Canada's population is aging at a faster pace than in other parts of the country. At the same time, a high number of people are leaving for opportunities in other provinces. That combination will keep labour force growth stagnant despite strong international immigration. These demographic trends heavily influence household consumption, which is expected to remain flat over the next two years. (See Chart 8.)

Public investment will take a back seat to private sector activity starting next year. Although most of the work on the Mactaquac Generating Station will occur in the next decade, spending on the project is expected to start as soon as next year. This will help to sustain activity in the construction sector.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

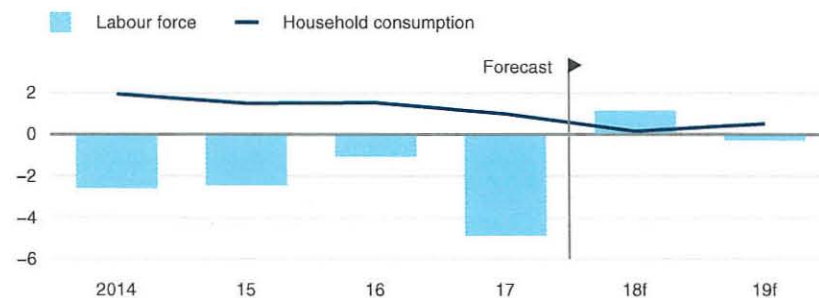
Real exports are forecast to grow by 1.9 per cent next year. The implementation of the Comprehensive and Economic Trade Agreement with the European Union, as well as better conditions in the fishing sector, will support export growth. However, there are significant risks to this outlook, as New Brunswick is among the provinces that are the most reliant on trade with the United States. The forestry and wood manufacturing sectors are already feeling the impacts of the trade disputes with the U.S., as they are dealing with tariffs imposed by the U.S. Department of Commerce late last year.

New Brunswick's service industries will continue to contribute positively to the province's economic outlook. Many large corporations, including TD and WestJet, are setting up business services centres in Saint John and Moncton. This is expected to translate into 3.3 per cent growth for the professional services sector this year.

Chart 8

New Brunswick's Declining Labour Force

(labour force gains/losses, 000s; household consumption, percentage change)



Note: 2017 household consumption is forecast data.

Sources: The Conference Board of Canada; Statistics Canada.

Quebec

Tariffs Hurt Trade Prospects

More than \$15 billion worth of transit and road infrastructure projects are currently under way in Montréal, so it is no surprise that 2018 will be a good year for the construction industry. These projects make a big difference. Quebec's economy is forecast to grow 2.3 per cent in 2018, the province's second-best performance since the 2008–09 recession. Looking ahead, the pace of growth will slow to 1.6 per cent in 2019.

Employment grew strongly last year, wages are growing, and inflation has been subdued for some time. That has given Quebecers more money to spend. But the pace of growth will ease. The population is aging, and the number of retirees is growing. With unemployment hovering near all-time lows, that leaves less room for job growth, which has slowed down. At the same time, as inflation begins to accelerate, rising prices will eat into households' disposable income.

A shortage of labour will be a problem for businesses, as it becomes more and more difficult for companies to expand or even maintain production levels by hiring new workers. Businesses will have to invest in productive capital, such as new machines or more efficient tools, allowing them to do more with less. Quebec has not excelled in this area in recent years. That is beginning to turn around, but not in a big way. Investment spending will be only slightly more than what is needed just to offset the depreciation of existing capital.

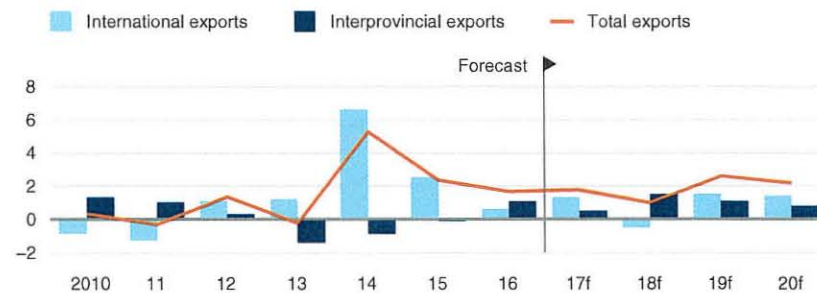
Finally, trade continues to be a problem. Most of Canada's aluminum operations are in Quebec, and they now face 10 per cent tariffs on their shipments to U.S. markets. That will put a dent in their performance. Trade will detract from the bottom line again in 2018 but will begin to recover next year. (See Chart 9.) However, the risk that the global trade war could escalate adds uncertainty to the outlook.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

Chart 9

Quebec Exports Struggle

(contribution to total percentage change, percentage points)



f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Ontario

Ontario Entering a Period of Economic Uncertainty

The Ontario economy will expand by 1.8 per cent in 2018 and 1.9 per cent next year. That is close to the Canada-wide averages. Rising interest rates and new policies for homebuyers have weakened the housing sector and slowed the pace of employment, income, and consumption growth. (See Chart 10.) Growth in employment will also be hurt by this year's increase in the minimum wage to \$14 per hour. Retail sales are expected to expand by 2.9 per cent this year and 3.2 per cent in 2019. In 2017, when the economy was growing at a faster clip, retail sales grew by more than 7 per cent.

Another key factor that is having a negative impact on the province's economy—particularly on investment spending—is the ongoing uncertainty about global trade. The NAFTA negotiations have bogged down over U.S. demands that any new agreement include a sunset clause (which Mexico and Canada strongly oppose) and over the trade rules governing the auto industry. President Trump has suggested that in order to benefit from preferential U.S. tariffs, at least 40 per cent of auto content in any vehicle sold in the U.S. would have to be sourced from high-waged economies. This has the potential to benefit Ontario's manufacturing sector.

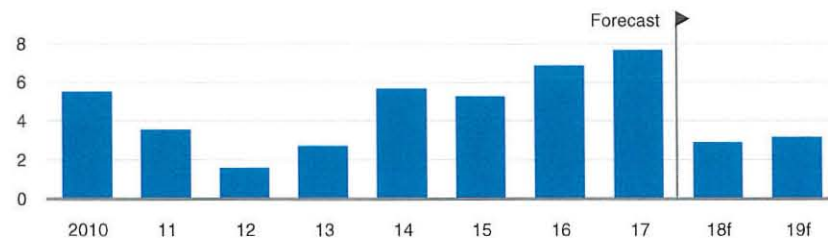
Despite growth in the U.S. economy of better than 3 per cent and the competitively low value of the Canadian dollar, export growth will remain below the 3 per cent mark over the near term. In addition to concerns about tariffs, export growth will be restrained by weaker car sales in the U.S. and ongoing competition from China (although China's competitive advantage in the U.S. market has been hurt by tariffs).

The election of a new Progressive Conservative government in Ontario poses both upside and downside risks for the Ontario economy. Premier Doug Ford has promised to cut government spending, although few details have emerged. His government has talked about cutting taxes to close the gap between U.S. and Ontario taxes. And it has promised to eliminate the carbon tax, which could lower gasoline prices.

Chart 10

Consumer Demand Easing Quickly in Ontario

(percentage change*)



*based on 2007 \$

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Manitoba

Growth Outlook for Key Sectors Is Mixed

Economic growth in Manitoba is projected to slow over the next few years because of mine closures and the completion of major construction projects, such as the Bipole III Transmission Line and the Keeyask Generating Station. Real GDP is forecast to grow 1.6 per cent this year and 1.2 per cent in 2019.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

The province is benefiting from capacity investments in power generation and food manufacturing. As well, the expected construction of the Manitoba segment of the Enbridge Line 3 replacement project will stimulate construction activity. Unique to 2018 is the boost in revenue for commercial services that resulted from the Winnipeg Jets' playoff run. The positive drivers of economic growth this year will be counterbalanced by the closure of mining operations (due to dwindling reserves and low prices), a slowing of the housing market, and declines in retail trade. After 2018, the economy will be supported mostly by steady growth in the manufacturing and transportation sectors, thanks in part to stronger foreign demand for transportation vehicles and equipment. (See Chart 11.) Further declines in mining production will weigh on economic growth in Manitoba over the next few years.

Chart 11

Diverging Growth in Some of Manitoba's Key Sectors

(percentage change*)



*based on 2007 \$

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

The stellar growth of Manitoba's agriculture sector in 2017 is unlikely to be repeated this year, as unusually dry conditions in parts of the province have hurt crop development. However, conditions could improve in the later part of the growing season. This year, the province's farmers focused more on wheat, corn, and oats and less on soybeans and canola.

The cooling of the economy will be reflected in modest employment growth of 0.5 per cent per year on average over the next few years and slower consumption growth, particularly for durable goods.

The economic outlook for Manitoba is subject to considerable risk, given the current tense state of international trade relations and the volatile weather conditions.

Saskatchewan

Uranium Sector Woes to Hurt Economy

The Saskatchewan economy will benefit from solid gains in many of its key industries, including energy, manufacturing, and potash mining. However, weakness in wholesale and retail trade, significant declines in uranium production, and cuts in public infrastructure spending will hold real GDP growth to 1.2 per cent this year. In 2019, real GDP is projected to expand 2.3 per cent, led by 5.6 per cent growth in the mining sector. However, the outlook for growth is at risk, given the recent announcement by Cameco that the McArthur River and Key Lake uranium mine shutdowns are being extended indefinitely and that the company has laid off 150 workers at its head office in Saskatoon. The announcement came in late July after our provincial forecast had been finalized and therefore represents a risk to our outlook for real GDP. Initial estimates of the direct impacts of the uranium sector difficulties indicate that real GDP growth will be around 0.6 percentage points lower in 2019 than forecast.

The forecast for other key sectors of the economy is more upbeat but faces some uncertainty as well. While the discount in the price of Western Canadian Select (WCS) crude relative to the West Texas Intermediate (WTI) benchmark price improved in April and May, recent pipeline and rail bottlenecks, as well as insufficient pipeline capacity down the road, continue to be worrisome. The July 22 deadline for the federal government to quickly sell the Trans Mountain pipeline was missed, further fuelling the uncertainty surrounding oil prices. Since mid-May, the WCS–WTI price differential has widened to as much as US\$32 per barrel. However, global demand for crude oil

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

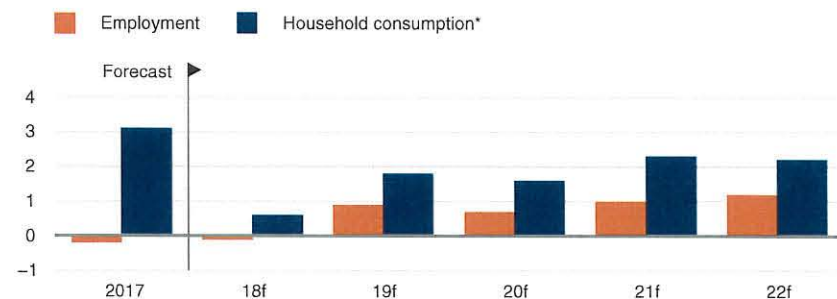
is expected to remain strong over the next few years, and thermal extraction technologies will allow for a steady rate of production—which is conducive to a low-price environment. Husky Energy has six thermal plants planned over the medium term, two of which are already under construction.

After contracting 2.4 per cent last year, Saskatchewan's agriculture sector is projected to rebound this year, thanks to rising wheat prices and steady global demand for cattle and hog products. However, a challenging winter and unusually cool and dry conditions for much of the spring have hurt the development of some crops.

Weakness in Saskatchewan's labour market is another sign pointing to more modest economic growth in 2018. Because of lower employment and rising inflation, real household consumption growth will be capped at 0.6 per cent this year. Employment and spending are forecast to pick up starting next year. But our forecast for the domestic economy will likely be revised downward as the economy starts to feel the impacts of the layoffs in the uranium sector. (See Chart 12.)

Chart 12

Employment Growth to Boost Spending in Saskatchewan Next Year
(percentage change*)



*based on 2007 \$

f = forecast

Sources: The Conference Board of Canada; Statistics Canada.

Alberta

Pipeline Expansions Good News for Investment Climate

While the fundamentals of Alberta's economy remain strong, growth is projected to be a middling 1.9 per cent this year and 1.8 per cent next year. This will be good enough to match the Canadian average but not enough to match that of neighbouring British Columbia in 2019. Growth will pick up beginning in the 2020s but will not surpass 2.5 per cent over the forecast period.

The uncertainty surrounding whether the Trans Mountain Pipeline expansion project would go ahead was not good for the business environment. However, the federal government's decision to purchase the project from Kinder Morgan meant that the expansion is back on track. The Enbridge Line 3 expansion also looks set to move ahead after receiving regulatory approval from the Minnesota Public Utilities Commission. Line 3 could be operational by the second half of next year. With rail exports of crude at a three-year high and current pipelines operating at close to capacity, this is excellent news for the province, as the new capacity could help relieve the steep price discount Alberta's oil producers are forced to take for their product.

Although a cloud of uncertainty still hangs over the broader competitiveness and regulatory climate in Alberta, it appears that businesses are growing more confident about their medium-term prospects. With more pipeline capacity in the offing, new energy investments have recently been announced by Nexen Energy and Prosper Petroleum. That, along with pipeline investments, will make Alberta a prime province for growth in private sector investment in 2019. (See Chart 13.)

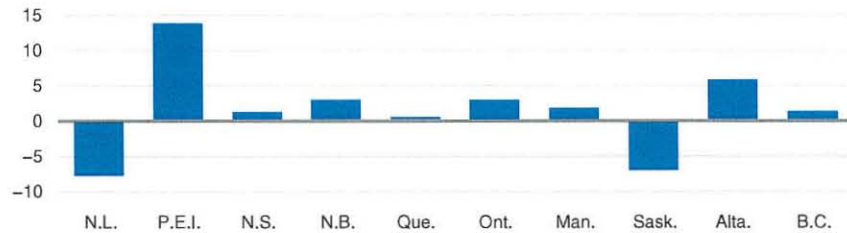
Outside of the energy sector, virtual all areas of the economy are showing some growth. This will cause the labour market to slowly tighten. Albertans can expect wages and household income to continue to grow in 2019 as the unemployment rate ticks down to 6.3 per cent.

PROVINCIAL OUTLOOK EXECUTIVE SUMMARY
Summer 2018

Chart 13

Stronger Private Sector Investment for Alberta in 2019

(business gross fixed capital formation, percentage change*)



f = forecast

*based on 2007 \$

Sources: The Conference Board of Canada; Statistics Canada.

British Columbia

Slower Growth for B.C.'s Economy

The B.C. economy expanded at an annual pace above the 3.0 per cent mark from 2011 to 2017, thanks in part to soaring housing markets and strong activity in the service sector, both of which are linked to healthy gains in labour markets. We expect weaker but still above-trend growth of 2.1 per cent in both 2018 and 2019. The slower growth will be a result of tight labour markets restraining employment growth and of the uncertain outlook for trade and investment attributable to an escalating global trade war and difficulties in obtaining approval for pipelines and LNG export facilities throughout the province.

The double-digit increases in B.C. housing starts in 2015 and 2016 were linked to several factors, including rock-bottom mortgage rates, rapid population growth, and tight supply. The strength in this sector is apparent from the data, which show that close to one-third of B.C.'s growth over the past few years was due to residential investment. The pace of expansion was unsustainable, and new tighter mortgage rules and several housing market taxes implemented in the provincial government's Budget 2018 have resulted in a sharp slowdown in activity. We expect housing starts to decline in 2018 and 2019. (See Chart 14.) The lack of housing affordability, combined with rising mortgage rates, has also hurt demand, especially in the Greater Vancouver region.

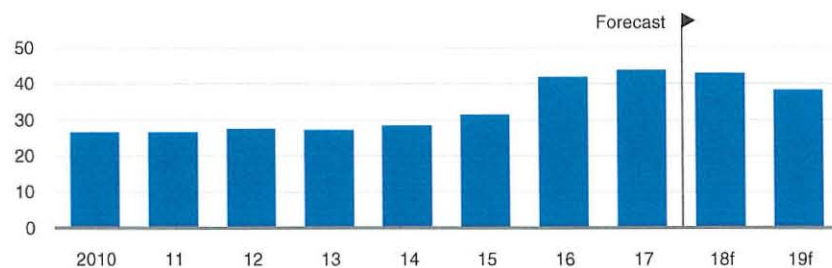
The outlook for non-residential investment is also less optimistic, although there are some pockets of ongoing strength. Ongoing disagreements between the B.C. and Alberta governments have postponed and threatened the Trans Mountain Pipeline expansion—and at a time when several other projects in the sector are being cancelled. However, this outlook assumes that the multi-billion-dollar pipeline expansion will get the go-ahead now that the federal government has stepped in to purchase the pipeline. Investment will also continue to flow to several other projects, including the Site C hydroelectric dam. Outside of the energy and utilities sectors, the outlook for investment spending is not bright due to the uncertainty created by the lack of progress in the NAFTA negotiations.

While employment growth over the near term will be weaker than the nearly 4 per cent gain recorded in 2017, labour markets will tighten and put upward pressure on wages. This, combined with an upcoming increase in the minimum wage, will help households deal with rising gasoline prices linked, in part, to an increase in the carbon tax.

Chart 14

B.C. Housing Starts Retreat

(units, 000s)



f = forecast.

Sources: The Conference Board of Canada; CMHC Timeseries Database.

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APPENDIX A

Forecast Tables

Table 1

Key Economic Indicators by Province, 2017–19

(forecast completed July 24, 2018)

	Gross domestic product at market prices (2007 \$ millions)			Gross domestic product at basic prices (2007 \$ millions)			Employment (000s)			Unemployment rate (per cent)			Retail sales (\$ millions)		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Newfoundland and Labrador	28,382 <i>1.9</i>	28,371 <i>0.0</i>	29,753 <i>4.9</i>	26,773 <i>2.1</i>	26,843 <i>0.3</i>	28,142 <i>4.8</i>	224 <i>-3.7</i>	222 <i>-0.8</i>	221 <i>-0.7</i>	14.7	15.1	15.1	9,227 <i>2.4</i>	9,095 <i>-1.4</i>	9,219 <i>1.4</i>
Prince Edward Island	5,391 <i>2.9</i>	5,544 <i>2.8</i>	5,682 <i>2.5</i>	4,883 <i>3.2</i>	5,037 <i>3.2</i>	5,161 <i>2.5</i>	74 <i>3.0</i>	76 <i>2.8</i>	77 <i>1.9</i>	9.8	9.7	8.9	2,349 <i>6.3</i>	2,443 <i>4.0</i>	2,490 <i>1.9</i>
Nova Scotia	37,004 <i>1.0</i>	37,405 <i>1.1</i>	37,600 <i>0.5</i>	33,470 <i>1.2</i>	33,934 <i>1.4</i>	34,102 <i>0.5</i>	449 <i>0.7</i>	454 <i>1.2</i>	454 <i>0.0</i>	8.4	7.5	7.6	15,861 <i>7.8</i>	16,330 <i>3.0</i>	16,603 <i>1.7</i>
New Brunswick	29,862 <i>1.7</i>	30,030 <i>0.6</i>	30,381 <i>1.2</i>	27,363 <i>1.9</i>	27,599 <i>0.9</i>	27,914 <i>1.1</i>	353 <i>0.4</i>	356 <i>0.7</i>	357 <i>0.4</i>	8.1	7.7	7.2	12,792 <i>6.8</i>	12,802 <i>0.1</i>	12,993 <i>1.5</i>
Quebec	353,565 <i>3.0</i>	361,844 <i>2.3</i>	367,607 <i>1.6</i>	328,688 <i>3.1</i>	336,698 <i>2.4</i>	342,144 <i>1.6</i>	4,226 <i>2.2</i>	4,276 <i>1.2</i>	4,304 <i>0.7</i>	6.0	5.3	5.0	125,723 <i>5.5</i>	129,976 <i>3.4</i>	133,237 <i>2.5</i>
Ontario	703,485 <i>2.7</i>	716,496 <i>1.8</i>	729,981 <i>1.9</i>	651,932 <i>2.8</i>	663,772 <i>1.8</i>	676,484 <i>1.9</i>	7,127 <i>1.8</i>	7,229 <i>1.4</i>	7,328 <i>1.4</i>	6.0	5.6	5.4	216,318 <i>7.7</i>	222,569 <i>2.9</i>	229,631 <i>3.2</i>
Manitoba	62,039 <i>2.6</i>	63,053 <i>1.6</i>	63,791 <i>1.2</i>	57,250 <i>2.9</i>	58,359 <i>1.9</i>	59,027 <i>1.1</i>	644 <i>1.6</i>	647 <i>0.5</i>	651 <i>0.7</i>	5.4	6.2	6.3	20,362 <i>7.8</i>	20,429 <i>0.3</i>	20,873 <i>2.2</i>
Saskatchewan	64,223 <i>2.7</i>	65,007 <i>1.2</i>	66,504 <i>2.3</i>	60,592 <i>2.9</i>	61,516 <i>1.5</i>	62,916 <i>2.3</i>	568 <i>-0.1</i>	568 <i>-0.1</i>	572 <i>0.7</i>	6.3	6.3	6.5	19,577 <i>4.1</i>	19,785 <i>1.1</i>	20,354 <i>2.9</i>
Alberta	316,653 <i>4.6</i>	322,727 <i>1.9</i>	328,560 <i>1.8</i>	304,709 <i>4.9</i>	311,478 <i>2.2</i>	317,025 <i>1.8</i>	2,289 <i>1.0</i>	2,328 <i>1.7</i>	2,354 <i>1.1</i>	7.8	6.4	6.3	80,318 <i>7.1</i>	83,130 <i>3.5</i>	86,154 <i>3.6</i>
British Columbia	249,620 <i>3.7</i>	254,871 <i>2.1</i>	260,252 <i>2.1</i>	228,195 <i>3.9</i>	233,688 <i>2.4</i>	238,563 <i>2.1</i>	2,467 <i>3.7</i>	2,480 <i>0.5</i>	2,509 <i>1.1</i>	5.1	4.8	4.7	84,291 <i>9.3</i>	87,825 <i>4.2</i>	90,925 <i>3.5</i>
Canada	1,856,263 <i>3.0</i>	1,890,060 <i>1.8</i>	1,924,504 <i>1.8</i>	1,739,819 <i>3.3</i>	1,776,770 <i>2.1</i>	1,808,696 <i>1.8</i>	18,421 <i>1.9</i>	18,635 <i>1.2</i>	18,828 <i>1.0</i>	6.3	5.7	5.6	588,828 <i>7.1</i>	606,451 <i>3.0</i>	624,576 <i>3.0</i>

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous year.

Sources: The Conference Board of Canada; Statistics Canada.

Table 2

Key Economic Indicators by Province, 2017–19

(forecast completed July 24, 2018)

	Gross domestic product at market prices—per capita (2007 \$)			Gross domestic product at basic prices—per capita (2007 \$)			Employment rate (per 1,000 people)			Household disposable income per capita (\$)			Primary household income per capita (\$)		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Newfoundland and Labrador	53,637 <i>2.1</i>	54,012 <i>0.7</i>	57,275 <i>6.0</i>	50,597 <i>2.3</i>	51,102 <i>1.0</i>	54,173 <i>6.0</i>	503 <i>-3.9</i>	501 <i>-0.4</i>	502 <i>0.2</i>	33,019 <i>1.4</i>	33,120 <i>0.3</i>	33,857 <i>2.2</i>	36,409 <i>0.9</i>	36,423 <i>0.0</i>	37,291 <i>2.4</i>
Prince Edward Island	35,592 <i>1.2</i>	36,109 <i>1.5</i>	36,347 <i>0.7</i>	32,242 <i>1.4</i>	32,808 <i>1.8</i>	33,015 <i>0.6</i>	596 <i>1.4</i>	604 <i>1.4</i>	605 <i>0.1</i>	29,227 <i>3.5</i>	30,073 <i>2.9</i>	30,400 <i>1.1</i>	31,028 <i>2.2</i>	31,826 <i>2.6</i>	32,249 <i>1.3</i>
Nova Scotia	38,803 <i>0.3</i>	38,997 <i>0.5</i>	39,004 <i>0.0</i>	35,098 <i>0.6</i>	35,378 <i>0.8</i>	35,375 <i>0.0</i>	567 <i>0.2</i>	570 <i>0.5</i>	567 <i>-0.5</i>	29,678 <i>4.0</i>	30,158 <i>1.6</i>	30,554 <i>1.3</i>	33,590 <i>2.7</i>	34,111 <i>1.6</i>	34,565 <i>1.3</i>
New Brunswick	39,333 <i>1.3</i>	39,442 <i>0.3</i>	39,837 <i>1.0</i>	36,041 <i>1.6</i>	36,249 <i>0.6</i>	36,602 <i>1.0</i>	565 <i>0.2</i>	567 <i>0.3</i>	568 <i>0.2</i>	30,425 <i>4.2</i>	31,117 <i>2.3</i>	31,555 <i>1.4</i>	32,079 <i>2.9</i>	32,968 <i>2.8</i>	33,511 <i>1.6</i>
Quebec	42,169 <i>2.1</i>	42,750 <i>1.4</i>	43,099 <i>0.8</i>	39,202 <i>2.2</i>	39,779 <i>1.5</i>	40,113 <i>0.8</i>	610 <i>1.5</i>	613 <i>0.5</i>	613 <i>0.1</i>	29,094 <i>4.8</i>	30,122 <i>3.5</i>	30,646 <i>1.7</i>	34,344 <i>3.7</i>	35,451 <i>3.2</i>	36,132 <i>1.9</i>
Ontario	49,645 <i>1.1</i>	49,776 <i>0.3</i>	50,084 <i>0.6</i>	46,007 <i>1.2</i>	46,113 <i>0.2</i>	46,414 <i>0.7</i>	610 <i>0.4</i>	609 <i>-0.2</i>	610 <i>0.2</i>	32,939 <i>2.5</i>	33,996 <i>3.2</i>	34,694 <i>2.1</i>	38,679 <i>2.1</i>	39,758 <i>2.8</i>	40,711 <i>2.4</i>
Manitoba	46,460 <i>1.1</i>	46,637 <i>0.4</i>	46,510 <i>-0.3</i>	42,873 <i>1.3</i>	43,165 <i>0.7</i>	43,037 <i>-0.3</i>	635 <i>0.2</i>	632 <i>-0.6</i>	628 <i>-0.6</i>	30,185 <i>3.6</i>	30,905 <i>2.4</i>	31,243 <i>1.1</i>	34,605 <i>2.4</i>	35,325 <i>2.1</i>	35,707 <i>1.1</i>
Saskatchewan	55,271 <i>1.3</i>	55,380 <i>0.2</i>	55,881 <i>0.9</i>	52,146 <i>1.5</i>	52,406 <i>0.5</i>	52,866 <i>0.9</i>	648 <i>-1.0</i>	642 <i>-1.0</i>	638 <i>-0.5</i>	33,697 <i>2.8</i>	33,901 <i>0.6</i>	34,376 <i>1.4</i>	38,844 <i>1.3</i>	38,765 <i>-0.2</i>	39,404 <i>1.6</i>
Alberta	73,960 <i>3.3</i>	74,307 <i>0.5</i>	74,503 <i>0.3</i>	71,170 <i>3.6</i>	71,717 <i>0.8</i>	71,888 <i>0.2</i>	667 <i>0.2</i>	672 <i>0.7</i>	670 <i>-0.2</i>	38,475 <i>3.0</i>	39,634 <i>3.0</i>	40,447 <i>2.1</i>	47,277 <i>2.4</i>	48,484 <i>2.6</i>	49,611 <i>2.3</i>
British Columbia	51,902 <i>2.3</i>	52,334 <i>0.8</i>	52,810 <i>0.9</i>	47,448 <i>2.6</i>	47,984 <i>1.1</i>	48,409 <i>0.9</i>	620 <i>2.4</i>	616 <i>-0.6</i>	616 <i>0.0</i>	36,420 <i>5.7</i>	37,597 <i>3.2</i>	38,391 <i>2.1</i>	41,689 <i>4.9</i>	42,940 <i>3.0</i>	43,968 <i>2.4</i>
Canada	50,638 <i>1.8</i>	50,918 <i>0.6</i>	51,278 <i>0.7</i>	47,462 <i>2.0</i>	47,866 <i>0.9</i>	48,192 <i>0.7</i>	33,019 <i>1.4</i>	33,120 <i>0.3</i>	33,857 <i>2.2</i>	32,972 <i>3.6</i>	33,976 <i>3.0</i>	34,633 <i>1.9</i>	38,658 <i>2.9</i>	39,702 <i>2.7</i>	40,579 <i>2.2</i>

Shaded area represents forecast data, *italics indicate percentage change*.

For each indicator, the first line is the level and the second line is the percentage change from the previous year.

Sources: The Conference Board of Canada; Statistics Canada.



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Exhibit 5 - Figure 3
Data

NP's Revenue (\$ millions)	
1995	338.934
1996	341.56
1997	343.677
1998	335.751
1999	342.001
2000	348.413
2001	359.305
2002	369.627
2003	384.15
2004	404.447
2005	419.963
2006	421.264
2007	491.709
2008	516.889
2009	527.179
2010	555.355
2011	573.072
2012	582.92
2013	605.127
2014	629.772
2015	652.814
2016	672.131
2017	672.435

Exhibit 6
Figure 4 Data and calculations

NP's Revenue (\$
millions)

		NP Revenue Growth	NL GDP Growth
		NP Revenue Growth	NL GDP Growth
338.934			
341.56	<u>1996</u>	0.77%	-4.73%
343.677	<u>1997</u>	0.62%	1.12%
335.751	<u>1998</u>	-2.31%	5.00%
342.001	<u>1999</u>	1.86%	5.98%
348.413	<u>2000</u>	1.87%	5.37%
359.305	<u>2001</u>	3.13%	2.41%
369.627	<u>2002</u>	2.87%	16.20%
384.15	<u>2003</u>	3.93%	6.56%
404.447	<u>2004</u>	5.28%	-0.73%
419.963	<u>2005</u>	3.84%	2.85%
421.264	<u>2006</u>	0.31%	3.97%
491.709	<u>2007</u>	16.72%	11.24%
516.889	<u>2008</u>	5.12%	-1.50%
527.179	<u>2009</u>	1.99%	-10.05%
555.355	<u>2010</u>	5.34%	5.46%
573.072	<u>2011</u>	3.19%	2.74%
582.92	<u>2012</u>	1.72%	-4.40%
605.127	<u>2013</u>	3.81%	5.22%
629.772	<u>2014</u>	4.07%	-0.94%
652.814	2015	3.66%	-1.65%
672.131	2016	2.96%	1.86%
672.435	<u>2017*</u>	0.05%	1.90%

	NP	Newfoundland GDP
Average	3.37%	2.47%
Median	3.13%	2.74%
StdDev	3.58%	5.66%
Max	16.72%	16.20%
Min	-2.31%	-10.05%
Correlation	0.310653111	

*2017 GDP growth is from the Conference Board's Summer 2018 Provincial Outlook.

Exhibit 7 - Figure 5 Data and Calculations

NP'S EBIT and EBITDA (1995-2017)

Year	Revenue	Purchased cost	Operating and employee cost	DP	EBITDA	EBIT	Growth EBITDA	Growth EBIT
1995	338934					64092		
1996	341560					68397		
1997	343,677	190,711	57,555	26,800	95411	68611		
1998	335,751	191,586	52,641	28,067	91524	63457	-4.07%	-7.51%
1999	342,001	192,755	52,709	29,638	96537	66899	5.48%	5.42%
2000	348,413	199,266	52,486	29,625	96661	67036	0.13%	0.20%
2001	359,305	202,479	52,908	34,003	103918	69915	7.51%	4.29%
2002	369,627	210,764	50,767	35,442	108096	72654	4.02%	3.92%
2003	384,150	227,964	51,799	29,372	104387	75015	-3.43%	3.25%
2004	404,447	244,012	51,755	30,987	108680	77693	4.11%	3.57%
2005	419,963	255,954	53,812	32,143	110197	78054	1.40%	0.46%
2006	421,264	257,157	53,996	33,129	110111	76982	-0.08%	-1.37%
2007	491,709	326,778	53,202	34,162	111729	77567	1.47%	0.76%
2008	516,889	336,658	50,172	44,511	130059	85548	16.41%	10.29%
2009	527,503	345,656	51,988	45,687	129859	84172	-0.15%	-1.61%
2010	555,355	358,443	15,498	50,417	181414	130997	39.70%	55.63%
2011	573,072	369,484	77,184	45,616	126404	80788	-30.32%	-38.33%
2012	582,920	380,374	78,957	47,372	123589	76217	-2.23%	-5.66%
2013	605,127	390,210	81,308	51,300	133609	82309	8.11%	7.99%
2014	629,772	402,843	83,972	53,882	142957	89075	7.00%	8.22%
2015	652,814	422,095	84,046	56,720	146673	89953	2.60%	0.99%
2016	672,131	443,311	78,690	60,472	150130	89658	2.36%	-0.33%
2017	672435	440249	80472	62973	151714	88741	1.06%	-1.02%
						Average	3.05%	2.46%
						Median	1.91%	0.87%

Exhibit 8 - NP Data and Calculations for Figure 6, and Tables 8 and 13

NP'S Revenue, EBIT and ROEs (1995-2017)

Year	Revenue	EBIT	EBIT/Sales	EBIT Growth	Actual ROE	Approved ROE	Actual-Approved ROE
1995	338934	64092	0.189098763		12.07%	13.25%	-1.18%
1996	341560	68397	0.200248858	0.067169069	11.21%	11.00%	0.21%
1997	343,677	68611	0.199638032	0.003128792	11.14%	11.00%	0.14%
1998	335,751	63457	0.189000182	-0.07511915	9.58%	9.25%	0.33%
1999	342,001	66899	0.195610539	0.054241455	9.81%	9.25%	0.56%
2000	348,413	67036	0.192403843	0.002047863	10.80%	9.59%	1.21%
2001	359,305	69915	0.194583989	0.042947073	11.35%	9.59%	1.76%
2002	369,627	72654	0.196560316	0.039176142	10.65%	9.05%	1.60%
2003	384,150	75015	0.195275283	0.03249649	10.22%	9.75%	0.47%
2004	404,447	77693	0.192096863	0.035699527	10.12%	9.75%	0.37%
2005	419,963	78054	0.18585923	0.004646493	9.60%	9.24%	0.36%
2006	421,264	76982	0.182740514	0.013734082	9.46%	9.24%	0.22%
2007	491,709	77567	0.157749807	0.007599179	8.66%	8.60%	0.06%
2008	516,889	85548	0.165505553	0.102891694	9.13%	8.95%	0.18%
2009	527,503	84172	0.159566865	0.016084537	8.96%	8.95%	0.01%
2010	555,355	130997	0.235879753	0.556301383	9.21%	9.00%	0.21%
2011	573,072	80788	0.14097356	0.383283587	9.00%	8.38%	0.62%
2012	582,920	76217	0.13075036	0.056580185	8.98%	8.80%	0.18%
2013	605,127	82309	0.136019381	0.079929674	9.16%	8.80%	0.36%
2014	629,772	89075	0.141440077	0.082202432	9.15%	8.80%	0.35%
2015	652,814	89953	0.137792694	0.009856862	8.98%	8.80%	0.18%
2016	672,131	89658	0.133393639	-0.00327949	8.90%	8.50%	0.40%
2017	672435	88741	0.131969633	0.010227754	8.93%	8.50%	0.43%

NP'S Revenue, EBIT and ROEs (1995-2017)

	Revenue	EBIT	EBIT/Sales	EBIT Growth	Actual ROE	Approved ROE	Actual-Approved ROE
Average	473426.913	79296.9565	0.1732	0.0255	9.79%	9.39%	0.39%
Median	421264	77567	0.1859	0.0087	9.46%	9.05%	0.35%
StdDev	123049.846	14052.3517	0.0295	0.1525	0.97%	1.08%	0.57%
Max	672435	130997	0.2359	0.5563	12.07%	13.25%	1.76%
Min	335751	63457	0.1308	-0.3833	8.66%	8.38%	-1.18%
CV(using average)	0.25991308	0.17721174	0.1700	5.9703	0.0992	0.1153	1.4487
E(EBIT) using Median EBIT growth		89515.5333					
CV(using E(EBIT))		0.15698227					

Exhibit 9 - Data and Calculations for US and Canadian Firms for Figure 6, Table 8 and Table 13

U.S. Sample								
FYEAR	TIC	CONM	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
1995	ALE	ALLETE INC	0.1029	62.925	628.985	64.705	0.1000	
1996	ALE	ALLETE INC	0.0867	95.327	798.361	69.221	0.1194	0.5149
1997	ALE	ALLETE INC	0.0869	118.9	892.9	77.6	0.1332	0.2473
1998	ALE	ALLETE INC	0.0899	142.8	983.9	88.5	0.1451	0.2010
1999	ALE	ALLETE INC	0.0633	167.9	1074	68	0.1563	0.1758
2000	ALE	ALLETE INC	0.1185	182.9	1254.5	148.6	0.1458	0.0893
2001	ALE	ALLETE INC	0.0955	207.7	1452.9	138.7	0.1430	0.1356
2002	ALE	ALLETE INC	0.0931	227.3	1474.4	137.2	0.1542	0.0944
2003	ALE	ALLETE INC	0.1494	264.7	1581.9	236.4	0.1673	0.1645
2004	ALE	ALLETE INC	0.1389	99.8	751.4	104.4	0.1328	-0.6230
2005	ALE	ALLETE INC	0.0180	123	737.4	13.3	0.1668	0.2325
2006	ALE	ALLETE INC	0.0996	140.7	767.1	76.4	0.1834	0.1439
2007	ALE	ALLETE INC	0.1041	133.7	841.7	87.6	0.1588	-0.0498
2008	ALE	ALLETE INC	0.1030	121.8	801	82.5	0.1521	-0.0890
2009	ALE	ALLETE INC	0.0804	106	759.1	61	0.1396	-0.1297
2010	ALE	ALLETE INC	0.0831	135.1	906.3	75.3	0.1491	0.2745
2011	ALE	ALLETE INC	0.1011	150	928.2	93.8	0.1616	0.1103
2012	ALE	ALLETE INC	0.1010	155.2	961.2	97.1	0.1615	0.0347
2013	ALE	ALLETE INC	0.1028	154.1	1018.4	104.7	0.1513	-0.0071
2014	ALE	ALLETE INC	0.1098	188.8	1136.8	124.8	0.1661	0.2252
2015	ALE	ALLETE INC	0.0949	247	1486.4	141.1	0.1662	0.3083
2016	ALE	ALLETE INC	0.1159	213.2	1339.7	155.3	0.1591	-0.1368
2017	ALE	ALLETE INC	0.1213	229.1	1419.3	172.2	0.1614	0.0746
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
		Average	0.0983	159.47617	1043.2977	105.1489565	0.1511	0.0905
		Median	0.1010	150	961.2	93.8	0.1542	0.1229
		StdDev	0.0255	52.722339	290.4489	46.91297724	0.0179	0.2213
		Max	0.1494	264.7	1581.9	236.4	0.1834	0.5149
		Min	0.0180	62.925	628.985	13.3	0.1000	-0.6230
		CV(using average)	0.2600	0.330597	0.278395	0.446157326	0.1183	2.4450
		E(EBIT) using Median EBIT growth		257.26577				
		CV(using E(EBIT))		0.204933				
1995	LNT	ALLIANT ENERGY CORP	0.0765	149.404	807.255	61.742	0.1851	
1996	LNT	ALLIANT ENERGY CORP	0.0806	141.504	932.844	75.218	0.1517	-0.0529
1997	LNT	ALLIANT ENERGY CORP	0.0702	128.607	919.255	64.564	0.1399	-0.0911
1998	LNT	ALLIANT ENERGY CORP	0.0485	283.302	2130.874	103.374	0.1330	1.2029
1999	LNT	ALLIANT ENERGY CORP	0.0925	376.535	2197.963	203.287	0.1713	0.3291
2000	LNT	ALLIANT ENERGY CORP	0.1686	381.056	2404.984	405.375	0.1584	0.0120
2001	LNT	ALLIANT ENERGY CORP	0.0645	370.024	2777.34	179.082	0.1332	-0.0290
2002	LNT	ALLIANT ENERGY CORP	0.0433	321.695	2608.812	113.053	0.1233	-0.1306

2003	LNT	ALLIANT ENERGY CORP	0.0641	411.734	3128.187	200.434	0.1316	0.2799
2004	LNT	ALLIANT ENERGY CORP	0.0555	419.8	2958.7	164.2	0.1419	0.0196
2005	LNT	ALLIANT ENERGY CORP	0.0034	475.9	3279.6	11	0.1451	0.1336
2006	LNT	ALLIANT ENERGY CORP	0.0995	493.5	3359.4	334.4	0.1469	0.0370
2007	LNT	ALLIANT ENERGY CORP	0.1292	544.3	3437.6	444	0.1583	0.1029
2008	LNT	ALLIANT ENERGY CORP	0.0833	488.6	3681.7	306.7	0.1327	-0.1023
2009	LNT	ALLIANT ENERGY CORP	0.0378	412.2	3432.8	129.7	0.1201	-0.1564
2010	LNT	ALLIANT ENERGY CORP	0.0897	568.1	3416.1	306.3	0.1663	0.3782
2011	LNT	ALLIANT ENERGY CORP	0.0878	497.6	3665.3	321.9	0.1358	-0.1241
2012	LNT	ALLIANT ENERGY CORP	0.1085	519.7	3094.5	335.7	0.1679	0.0444
2013	LNT	ALLIANT ENERGY CORP	0.1148	533.9	3276.8	376.2	0.1629	0.0273
2014	LNT	ALLIANT ENERGY CORP	0.1174	543.6	3350.3	393.3	0.1623	0.0182
2015	LNT	ALLIANT ENERGY CORP	0.1194	599.2	3253.6	388.4	0.1842	0.1023
2016	LNT	ALLIANT ENERGY CORP	0.1150	623.4	3320	381.7	0.1878	0.0404
2017	LNT	ALLIANT ENERGY CORP	0.1382	653.4	3382.2	467.5	0.1932	0.0481

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.0873	432.04613	2818.0919	250.7447391	0.1536	0.0950
Median	0.0878	475.9	3253.6	306.3	0.1517	0.0322
StdDev	0.0372	149.16835	874.14355	140.9878599	0.0214	0.2850
Max	0.1686	653.4	3681.7	467.5	0.1932	1.2029
Min	0.0034	128.607	807.255	11	0.1201	-0.1564
CV(using average)	0.4265	0.3452602	0.3101899	0.562276443	0.1396	3.0002
E(EBIT) using Median EBIT growth		674.40878				
CV(using E(EBIT))		0.221184				

1995	AEP	AMERICAN ELECTRIC POWER CO	0.1031	1253.979	5670.328	584.674	0.2211	
1996	AEP	AMERICAN ELECTRIC POWER CO	0.1075	1373.277	5849.23	628.856	0.2348	0.0951
1997	AEP	AMERICAN ELECTRIC POWER CO	0.0858	1347.014	6161.368	528.792	0.2186	-0.0191
1998	AEP	AMERICAN ELECTRIC POWER CO	0.0862	1291.282	6345.902	547.109	0.2035	-0.0414
1999	AEP	AMERICAN ELECTRIC POWER CO	0.0768	1305	6916	531	0.1887	0.0106
2000	AEP	AMERICAN ELECTRIC POWER CO	0.0270	2026	13694	370	0.1479	0.5525
2001	AEP	AMERICAN ELECTRIC POWER CO	0.0160	2395	61257	981	0.0391	0.1821
2002	AEP	AMERICAN ELECTRIC POWER CO	-0.0349	1263	14536	-508	0.0869	-0.4727
2003	AEP	AMERICAN ELECTRIC POWER CO	0.0082	2282	14545	119	0.1569	0.8068
2004	AEP	AMERICAN ELECTRIC POWER CO	0.0779	1991	14057	1095	0.1416	-0.1275
2005	AEP	AMERICAN ELECTRIC POWER CO	0.0678	1966	12111	821	0.1623	-0.0126
2006	AEP	AMERICAN ELECTRIC POWER CO	0.0796	2175	12622	1005	0.1723	0.1063
2007	AEP	AMERICAN ELECTRIC POWER CO	0.0816	2396	13380	1092	0.1791	0.1016
2008	AEP	AMERICAN ELECTRIC POWER CO	0.0958	2532	14440	1383	0.1753	0.0568
2009	AEP	AMERICAN ELECTRIC POWER CO	0.1008	2771	13489	1360	0.2054	0.0944
2010	AEP	AMERICAN ELECTRIC POWER CO	0.0841	2956	14427	1214	0.2049	0.0668
2011	AEP	AMERICAN ELECTRIC POWER CO	0.1287	2870	15116	1946	0.1899	-0.0291
2012	AEP	AMERICAN ELECTRIC POWER CO	0.0842	3002	14945	1259	0.2009	0.0460
2013	AEP	AMERICAN ELECTRIC POWER CO	0.0964	3111	15357	1480	0.2026	0.0363

2014	AEP	AMERICAN ELECTRIC POWER CO	0.0960	3287	17020	1634	0.1931	0.0566
2015	AEP	AMERICAN ELECTRIC POWER CO	0.1244	3333.5	16453.2	2047.1	0.2026	0.0141
2016	AEP	AMERICAN ELECTRIC POWER CO	0.0373	3474.9	16380.1	610.9	0.2121	0.0424
2017	AEP	AMERICAN ELECTRIC POWER CO	0.1240	3431.2	15424.9	1912.6	0.2224	-0.0126
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average			0.0763	2340.5718	14791.175	984.4361304	0.1810	0.0706
Median			0.0842	2395	14427	1005	0.1931	0.0442
StdDev			0.0404	771.84042	10784.757	619.6008755	0.0450	0.2369
Max			0.1287	3474.9	61257	2047.1	0.2348	0.8068
Min			-0.0349	1253.979	5670.328	-508	0.0391	-0.4727
CV(using average)			0.5291	0.3297657	0.7291345	0.629396724	0.2487	3.3547
E(EBIT) using Median EBIT growth				3582.8778				
CV(using E(EBIT))				0.215425				
1995	DUK	DUKE ENERGY CORP	0.1528	1349.051	4676.684	714.538	0.2885	
1996	DUK	DUKE ENERGY CORP	0.1534	1362.202	4757.973	729.966	0.2863	0.0097
1997	DUK	DUKE ENERGY CORP	0.0597	1969.998	16308.898	974.4	0.1208	0.4462
1998	DUK	DUKE ENERGY CORP	0.0711	2433	17610	1252	0.1382	0.2350
1999	DUK	DUKE ENERGY CORP	0.0693	1795	21742	1507	0.0826	-0.2622
2000	DUK	DUKE ENERGY CORP	0.0363	3406	48911	1776	0.0696	0.8975
2001	DUK	DUKE ENERGY CORP	0.0319	4100	59503	1898	0.0689	0.2038
2002	DUK	DUKE ENERGY CORP	0.0660	2500	15663	1034	0.1596	-0.3902
2003	DUK	DUKE ENERGY CORP	-0.0597	2530	22154	-1323	0.1142	0.0120
2004	DUK	DUKE ENERGY CORP	0.0662	2958	22503	1490	0.1314	0.1692
2005	DUK	DUKE ENERGY CORP	0.1089	3616	16746	1824	0.2159	0.2224
2006	DUK	DUKE ENERGY CORP	0.1227	3312	15184	1863	0.2181	-0.0841
2007	DUK	DUKE ENERGY CORP	0.1179	2523	12720	1500	0.1983	-0.2382
2008	DUK	DUKE ENERGY CORP	0.1031	2637	13207	1362	0.1997	0.0452
2009	DUK	DUKE ENERGY CORP	0.0844	2713	12731	1075	0.2131	0.0288
2010	DUK	DUKE ENERGY CORP	0.0925	3346	14272	1320	0.2344	0.2333
2011	DUK	DUKE ENERGY CORP	0.1174	3146	14529	1706	0.2165	-0.0598
2012	DUK	DUKE ENERGY CORP	0.0901	4339	19624	1768	0.2211	0.3792
2013	DUK	DUKE ENERGY CORP	0.1086	6137	24549	2665	0.2500	0.4144
2014	DUK	DUKE ENERGY CORP	0.0787	5657	23930	1883	0.2364	-0.0782
2015	DUK	DUKE ENERGY CORP	0.1200	5746	23459	2816	0.2449	0.0157
2016	DUK	DUKE ENERGY CORP	0.0946	5722	22754	2152	0.2515	-0.0042
2017	DUK	DUKE ENERGY CORP	0.1298	6129	23565	3059	0.2601	0.0711
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average			0.0876	3453.3153	20482.589	1523.734957	0.1922	0.1030
Median			0.0925	3146	17610	1507	0.2159	0.0370
StdDev			0.0455	1505.3969	12111.656	869.4394293	0.0676	0.2776
Max			0.1534	6137	59503	3059	0.2885	0.8975
Min			-0.0597	1349.051	4676.684	-1323	0.0689	-0.3902
CV(using average)			0.5189	0.435928	0.5913147	0.570597548	0.3515	2.6948

E(EBIT) using Median EBIT growth				6355.7881				
CV(using E(EBIT))				0.236854				
1995	EIX	EDISON INTERNATIONAL	0.0948	1789.686	8289.613	785.995	0.2159	
1996	EIX	EDISON INTERNATIONAL	0.0911	1886.884	8390.375	764.243	0.2249	0.0543
1997	EIX	EDISON INTERNATIONAL	0.0821	1844.922	9045.451	742.511	0.2040	-0.0222
1998	EIX	EDISON INTERNATIONAL	0.0705	1594.959	10018.24	705.944	0.1592	-0.1355
1999	EIX	EDISON INTERNATIONAL	0.0671	1744	9670	649	0.1804	0.0934
2000	EIX	EDISON INTERNATIONAL	-0.1640	-1729	11717	-1922	-0.1476	-1.9914
2001	EIX	EDISON INTERNATIONAL	0.0924	5456	11436	1057	0.4771	-4.1556
2002	EIX	EDISON INTERNATIONAL	0.0954	2372	11488	1096	0.2065	-0.5652
2003	EIX	EDISON INTERNATIONAL	0.0685	2095	12135	831	0.1726	-0.1168
2004	EIX	EDISON INTERNATIONAL	0.0904	2089	10199	922	0.2048	-0.0029
2005	EIX	EDISON INTERNATIONAL	0.0980	2303	11852	1161	0.1943	0.1024
2006	EIX	EDISON INTERNATIONAL	0.0976	2490	12622	1232	0.1973	0.0812
2007	EIX	EDISON INTERNATIONAL	0.0876	2509	13113	1149	0.1913	0.0076
2008	EIX	EDISON INTERNATIONAL	0.0897	2563	14112	1266	0.1816	0.0215
2009	EIX	EDISON INTERNATIONAL	0.0728	2336	12361	900	0.1890	-0.0886
2010	EIX	EDISON INTERNATIONAL	0.1054	2166	12409	1308	0.1746	-0.0728
2011	EIX	EDISON INTERNATIONAL	0.0017	2082	12760	22	0.1632	-0.0388
2012	EIX	EDISON INTERNATIONAL	-0.0078	2220	11862	-92	0.1872	0.0663
2013	EIX	EDISON INTERNATIONAL	0.0807	2290	12581	1015	0.1820	0.0315
2014	EIX	EDISON INTERNATIONAL	0.1285	2629	13413	1724	0.1960	0.1480
2015	EIX	EDISON INTERNATIONAL	0.0983	2008	11524	1133	0.1742	-0.2362
2016	EIX	EDISON INTERNATIONAL	0.1208	2092	11869	1434	0.1763	0.0418
2017	EIX	EDISON INTERNATIONAL	0.0559	2209	12320	689	0.1793	0.0559
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average			0.0703	2132.1935	11529.856	807.5083913	0.1863	-0.3055
Median			0.0897	2166	11862	922	0.1872	0.0024
StdDev			0.0599	1119.0283	1558.0136	718.7111435	0.0958	0.9677
Max			0.1285	5456	14112	1724	0.4771	0.1480
Min			-0.1640	-1729	8289.613	-1922	-0.1476	-4.1556
CV(using average)			0.8514	0.5248249	0.1351286	0.890035511	0.5141	-3.1672
E(EBIT) using Median EBIT growth				2214.2647				
CV(using E(EBIT))				0.505372				
1995	ES	EVERSOURCE ENERGY	0.0858	853.208	3748.991	321.813	0.2276	
1996	ES	EVERSOURCE ENERGY	0.0094	339.833	3792.148	35.607	0.0896	-0.6017
1997	ES	EVERSOURCE ENERGY	-0.0260	203.432	3834.806	-99.676	0.0530	-0.4014
1998	ES	EVERSOURCE ENERGY	-0.0319	307.059	3767.714	-120.313	0.0815	0.5094
1999	ES	EVERSOURCE ENERGY	0.0127	525.42	4471.251	56.971	0.1175	0.7111
2000	ES	EVERSOURCE ENERGY	-0.0025	694.794	5876.62	-14.424	0.1182	0.3224
2001	ES	EVERSOURCE ENERGY	0.0365	539.174	6873.826	250.759	0.0784	-0.2240
2002	ES	EVERSOURCE ENERGY	0.0302	466.655	5216.321	157.668	0.0895	-0.1345

2003	ES	EVERSOURCE ENERGY	0.0201	493.366	6069.156	121.97	0.0813	0.0572
2004	ES	EVERSOURCE ENERGY	0.0183	412.952	6686.699	122.147	0.0618	-0.1630
2005	ES	EVERSOURCE ENERGY	-0.0335	-109.722	7397.39	-247.929	-0.0148	-1.2657
2006	ES	EVERSOURCE ENERGY	0.0692	234.224	6884.388	476.137	0.0340	-3.1347
2007	ES	EVERSOURCE ENERGY	0.0433	539.637	5822.226	252.042	0.0927	1.3039
2008	ES	EVERSOURCE ENERGY	0.0459	640.265	5800.095	266.387	0.1104	0.1865
2009	ES	EVERSOURCE ENERGY	0.0617	751.375	5439.43	335.592	0.1381	0.1735
2010	ES	EVERSOURCE ENERGY	0.0792	799.891	4898.167	387.949	0.1633	0.0646
2011	ES	EVERSOURCE ENERGY	0.0884	824.176	4465.657	394.693	0.1846	0.0304
2012	ES	EVERSOURCE ENERGY	0.0838	1118.206	6273.787	525.945	0.1782	0.3568
2013	ES	EVERSOURCE ENERGY	0.1077	1529.435	7301.204	786.007	0.2095	0.3678
2014	ES	EVERSOURCE ENERGY	0.1059	1632.849	7741.856	819.546	0.2109	0.0676
2015	ES	EVERSOURCE ENERGY	0.1104	1764.164	7954.827	878.485	0.2218	0.0804
2016	ES	EVERSOURCE ENERGY	0.1234	1832.359	7639.129	942.302	0.2399	0.0387
2017	ES	EVERSOURCE ENERGY	0.1275	1918.154	7751.952	987.996	0.2474	0.0468

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.0507	796.12635	5900.3322	332.0727826	0.1311	-0.0731
Median	0.0459	640.265	5876.62	266.387	0.1175	0.0609
StdDev	0.0498	569.65417	1424.7675	354.0303776	0.0728	0.8409
Max	0.1275	1918.154	7954.827	987.996	0.2474	1.3039
Min	-0.0335	-109.722	3748.991	-247.929	-0.0148	-3.1347
CV(using average)	0.9824	0.7155324	0.2414724	1.066122839	0.5555	-11.5052
E(EBIT) using Median EBIT growth		2034.9781				
CV(using E(EBIT))		0.279931				

1995	OGE	OGE ENERGY CORP	0.0962	270.964	1302.037	125.256	0.2081	
1996	OGE	OGE ENERGY CORP	0.0961	279.446	1387.435	133.332	0.2014	0.0313
1997	OGE	OGE ENERGY CORP	0.0900	268.45	1472.307	132.55	0.1823	-0.0393
1998	OGE	OGE ENERGY CORP	0.1025	339.457	1617.737	165.872	0.2098	0.2645
1999	OGE	OGE ENERGY CORP	0.0696	338.165	2172.434	151.259	0.1557	-0.0038
2000	OGE	OGE ENERGY CORP	0.0446	349.821	3298.727	147.035	0.1060	0.0345
2001	OGE	OGE ENERGY CORP	0.0316	278.015	3182.363	100.571	0.0874	-0.2053
2002	OGE	OGE ENERGY CORP	0.0300	235.7	3023.9	90.8	0.0779	-0.1522
2003	OGE	OGE ENERGY CORP	0.0343	306.9	3779	129.8	0.0812	0.3021
2004	OGE	OGE ENERGY CORP	0.0312	317.5	4926.6	153.5	0.0644	0.0345
2005	OGE	OGE ENERGY CORP	0.0355	330.5	5948.2	211	0.0556	0.0409
2006	OGE	OGE ENERGY CORP	0.0654	432.7	4005.6	262.1	0.1080	0.3092
2007	OGE	OGE ENERGY CORP	0.0643	455.3	3797.6	244.2	0.1199	0.0522
2008	OGE	OGE ENERGY CORP	0.0568	471.6	4070.7	231.4	0.1159	0.0358
2009	OGE	OGE ENERGY CORP	0.0900	491.9	2869.7	258.3	0.1714	0.0430
2010	OGE	OGE ENERGY CORP	0.0794	593.9	3716.9	295.3	0.1598	0.2074
2011	OGE	OGE ENERGY CORP	0.0876	643.7	3915.9	342.9	0.1644	0.0839
2012	OGE	OGE ENERGY CORP	0.0967	669.8	3671.2	355	0.1824	0.0405
2013	OGE	OGE ENERGY CORP	0.1352	553.5	2867.7	387.6	0.1930	-0.1736

2014	OGE	OGE ENERGY CORP	0.1613	536.8	2453.1	395.8	0.2188	-0.0302
2015	OGE	OGE ENERGY CORP	0.1235	481.2	2196.9	271.3	0.2190	-0.1036
2016	OGE	OGE ENERGY CORP	0.1497	503.3	2259.2	338.2	0.2228	0.0459
2017	OGE	OGE ENERGY CORP	0.2738	510.3	2261.1	619	0.2257	0.0139

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.0889	419.95296	3052.0148	240.9597826	0.1535	0.0378
Median	0.0876	432.7	3023.9	231.4	0.1644	0.0352
StdDev	0.0553	129.80816	1170.7532	125.8352252	0.0566	0.1378
Max	0.2738	669.8	5948.2	619	0.2257	0.3092
Min	0.0300	235.7	1302.037	90.8	0.0556	-0.2053
CV(using average)	0.6221	0.3091017	0.3836001	0.522225011	0.3686	3.6456
E(EBIT) using Median EBIT growth		528.24713				
CV(using E(EBIT))		0.245734				

1995	PNW	PINNACLE WEST CAPITAL CORP	0.1241	562.424	1669.798	207.171	0.3368	
1996	PNW	PINNACLE WEST CAPITAL CORP	0.1091	543.859	1817.76	198.272	0.2992	-0.0330
1997	PNW	PINNACLE WEST CAPITAL CORP	0.1246	557.506	1995.026	248.659	0.2794	0.0251
1998	PNW	PINNACLE WEST CAPITAL CORP	0.1186	567.128	2130.586	252.595	0.2662	0.0173
1999	PNW	PINNACLE WEST CAPITAL CORP	0.0697	578.777	2423.353	168.903	0.2388	0.0205
2000	PNW	PINNACLE WEST CAPITAL CORP	0.0819	675.971	3690.175	302.332	0.1832	0.1679
2001	PNW	PINNACLE WEST CAPITAL CORP	0.0686	674.627	4551.373	312.166	0.1482	-0.0020
2002	PNW	PINNACLE WEST CAPITAL CORP	0.0567	516.047	2637.279	149.408	0.1957	-0.2351
2003	PNW	PINNACLE WEST CAPITAL CORP	0.0854	482.053	2817.852	240.579	0.1711	-0.0659
2004	PNW	PINNACLE WEST CAPITAL CORP	0.0839	506.259	2899.725	243.195	0.1746	0.0502
2005	PNW	PINNACLE WEST CAPITAL CORP	0.0590	653.851	2987.955	176.267	0.2188	0.2915
2006	PNW	PINNACLE WEST CAPITAL CORP	0.0962	618.87	3401.748	327.255	0.1819	-0.0535
2007	PNW	PINNACLE WEST CAPITAL CORP	0.0872	619.251	3523.62	307.143	0.1757	0.0006
2008	PNW	PINNACLE WEST CAPITAL CORP	0.0719	530.546	3367.076	242.125	0.1576	-0.1432
2009	PNW	PINNACLE WEST CAPITAL CORP	0.0207	580.226	3297.101	68.33	0.1760	0.0936
2010	PNW	PINNACLE WEST CAPITAL CORP	0.1073	723.884	3263.645	350.053	0.2218	0.2476
2011	PNW	PINNACLE WEST CAPITAL CORP	0.1047	746.508	3241.379	339.473	0.2303	0.0313
2012	PNW	PINNACLE WEST CAPITAL CORP	0.1156	851.755	3301.804	381.542	0.2580	0.1410
2013	PNW	PINNACLE WEST CAPITAL CORP	0.1175	846.323	3454.628	406.074	0.2450	-0.0064
2014	PNW	PINNACLE WEST CAPITAL CORP	0.1139	811.242	3491.632	397.595	0.2323	-0.0415
2015	PNW	PINNACLE WEST CAPITAL CORP	0.1251	854.602	3495.443	437.257	0.2445	0.0534
2016	PNW	PINNACLE WEST CAPITAL CORP	0.1263	855.984	3498.682	442.034	0.2447	0.0016
2017	PNW	PINNACLE WEST CAPITAL CORP	0.1370	934.427	3565.296	488.456	0.2621	0.0916

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.0959	664.87478	3066.2146	290.734087	0.2236	0.0297
Median	0.1047	619.251	3297.101	302.332	0.2303	0.0189
StdDev	0.0288	136.30027	686.30283	106.1285097	0.0485	0.1166
Max	0.1370	934.427	4551.373	488.456	0.3368	0.2915
Min	0.0207	482.053	1669.798	68.33	0.1482	-0.2351
CV(using average)	0.3004	0.2050014	0.2238274	0.365036349	0.2170	3.9305

E(EBIT) using Median EBIT growth				952.08736				
CV(using E(EBIT))				0.143159				
1995	PNM	PNM RESOURCES INC	0.0935	143.582	808.465	75.562	0.1776	
1996	PNM	PNM RESOURCES INC	0.0822	165.414	883.386	72.58	0.1872	0.1521
1997	PNM	PNM RESOURCES INC	0.0713	162.379	1135.267	80.995	0.1430	-0.0183
1998	PNM	PNM RESOURCES INC	0.0757	176.955	1092.445	82.682	0.1620	0.0898
1999	PNM	PNM RESOURCES INC	0.0718	145.089	1157.543	83.155	0.1253	-0.1801
2000	PNM	PNM RESOURCES INC	0.0626	186.438	1611.274	100.946	0.1157	0.2850
2001	PNM	PNM RESOURCES INC	0.0640	311.446	2352.098	150.433	0.1324	0.6705
2002	PNM	PNM RESOURCES INC	0.0550	122.661	1168.996	64.272	0.1049	-0.6062
2003	PNM	PNM RESOURCES INC	0.0658	146.664	1455.714	95.759	0.1008	0.1957
2004	PNM	PNM RESOURCES INC	0.0550	148.96	1604.792	88.258	0.0928	0.0157
2005	PNM	PNM RESOURCES INC	0.0338	156.819	2076.81	70.095	0.0755	0.0528
2006	PNM	PNM RESOURCES INC	0.0491	286.109	2471.669	121.346	0.1158	0.8245
2007	PNM	PNM RESOURCES INC	0.0394	147.942	1914.029	75.402	0.0773	-0.4829
2008	PNM	PNM RESOURCES INC	-0.1378	22.203	1959.522	-270.116	0.0113	-0.8499
2009	PNM	PNM RESOURCES INC	0.0758	191.942	1647.744	124.844	0.1165	7.6449
2010	PNM	PNM RESOURCES INC	-0.0267	239.452	1673.517	-44.687	0.1431	0.2475
2011	PNM	PNM RESOURCES INC	0.1040	265.649	1700.619	176.887	0.1562	0.1094
2012	PNM	PNM RESOURCES INC	0.0790	273.721	1342.403	106.075	0.2039	0.0304
2013	PNM	PNM RESOURCES INC	0.0728	286.842	1387.923	101.035	0.2067	0.0479
2014	PNM	PNM RESOURCES INC	0.0813	302.897	1435.853	116.782	0.2110	0.0560
2015	PNM	PNM RESOURCES INC	0.0112	291.416	1439.082	16.168	0.2025	-0.0379
2016	PNM	PNM RESOURCES INC	0.0861	277.985	1362.951	117.377	0.2040	-0.0461
2017	PNM	PNM RESOURCES INC	0.0556	333.521	1445.003	80.402	0.2308	0.1998
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average			0.0531	208.0907	1527.2654	73.31530435	0.1433	0.3818
Median			0.0658	186.438	1445.003	83.155	0.1430	0.0544
StdDev			0.0501	78.980257	423.04893	86.42665863	0.0546	1.6619
Max			0.1040	333.521	2471.669	176.887	0.2308	7.6449
Min			-0.1378	22.203	808.465	-270.116	0.0113	-0.8499
CV(using average)			0.9445	0.3795473	0.2769976	1.178835161	0.3810	4.3524
E(EBIT) using Median EBIT growth				351.65299				
CV(using E(EBIT))				0.224597				
1995	SO	SOUTHERN CO	0.1298	2660.49	9180.023	1191.349	0.2898	
1996	SO	SOUTHERN CO	0.1170	2601	10358	1212	0.2511	-0.0224
1997	SO	SOUTHERN CO	0.0805	2665	12611	1015	0.2113	0.0246
1998	SO	SOUTHERN CO	0.0879	2310	11403	1002	0.2026	-0.1332
1999	SO	SOUTHERN CO	0.1119	2779	11585	1296	0.2399	0.2030
2000	SO	SOUTHERN CO	0.1323	2404	10066	1332	0.2388	-0.1349
2001	SO	SOUTHERN CO	0.1260	2391	10155	1280	0.2355	-0.0054
2002	SO	SOUTHERN CO	0.1266	2581	10549	1335	0.2447	0.0795

2003	SO	SOUTHERN CO	0.1346	2811	11107	1495	0.2531	0.0891
2004	SO	SOUTHERN CO	0.1312	2827	11902	1562	0.2375	0.0057
2005	SO	SOUTHERN CO	0.1196	2962	13554	1621	0.2185	0.0478
2006	SO	SOUTHERN CO	0.1119	3224	14356	1607	0.2246	0.0885
2007	SO	SOUTHERN CO	0.1161	3326	15353	1782	0.2166	0.0316
2008	SO	SOUTHERN CO	0.1055	3506	17127	1807	0.2047	0.0541
2009	SO	SOUTHERN CO	0.1085	3470	15743	1708	0.2204	-0.0103
2010	SO	SOUTHERN CO	0.1169	3802	17456	2040	0.2178	0.0957
2011	SO	SOUTHERN CO	0.1284	4231	17657	2268	0.2396	0.1128
2012	SO	SOUTHERN CO	0.1460	4444	16537	2415	0.2687	0.0503
2013	SO	SOUTHERN CO	0.1001	4424	17087	1710	0.2589	-0.0045
2014	SO	SOUTHERN CO	0.1100	4510	18467	2031	0.2442	0.0194
2015	SO	SOUTHERN CO	0.1384	4678	17489	2421	0.2675	0.0373
2016	SO	SOUTHERN CO	0.1253	5137	19896	2493	0.2582	0.0981
2017	SO	SOUTHERN CO	0.0382	5981	23031	880	0.2597	0.1643

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.1149	3466.2822	14463.871	1630.580391	0.2393	0.0405
Median	0.1170	3224	14356	1607	0.2396	0.0425
StdDev	0.0228	1007.5516	3727.6549	473.1481102	0.0224	0.0797
Max	0.1460	5981	23031	2493	0.2898	0.2030
Min	0.0382	2310	9180.023	880	0.2026	-0.1349
CV(using average)	0.1988	0.2906721	0.2577218	0.290171593	0.0938	1.9681
E(EBIT) using Median EBIT growth		6235.2055				
CV(using E(EBIT))		0.161591				

Canadian Sample

FYEAR	TIC	CONM	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
1995	CDUAF	CANADIAN UTILITIES -CL A	0.1155	502.5	1674	193.3	0.3002	
1996	CDUAF	CANADIAN UTILITIES -CL A	0.1146	541.3	1816.3	208.2	0.2980	0.0772
1997	CDUAF	CANADIAN UTILITIES -CL A	0.1102	525.9	1927.6	212.5	0.2728	-0.0285
1998	CDUAF	CANADIAN UTILITIES -CL A	0.1124	548.8	1945.7	218.6	0.2821	0.0435
1999	CDUAF	CANADIAN UTILITIES -CL A	0.1004	550	2207.7	221.6	0.2491	0.0022
2000	CDUAF	CANADIAN UTILITIES -CL A	0.0837	594.2	2923.1	244.8	0.2033	0.0804
2001	CDUAF	CANADIAN UTILITIES -CL A	0.0726	572.7	3500.1	254.1	0.1636	-0.0362
2002	CDUAF	CANADIAN UTILITIES -CL A	0.1086	561	2975.9	323.2	0.1885	-0.0204
2003	CDUAF	CANADIAN UTILITIES -CL A	0.0781	605	3742.6	292.4	0.1617	0.0784
2004	CDUAF	CANADIAN UTILITIES -CL A	0.1116	612.4	3089.5	344.8	0.1982	0.0122
2005	CDUAF	CANADIAN UTILITIES -CL A	0.1198	650.4	2515.8	301.4	0.2585	0.0621
2006	CDUAF	CANADIAN UTILITIES -CL A	0.1480	691.2	2430.4	359.7	0.2844	0.0627
2007	CDUAF	CANADIAN UTILITIES -CL A	0.1751	651.8	2404.9	421	0.2710	-0.0570
2008	CDUAF	CANADIAN UTILITIES -CL A	0.1604	754.3	2778.9	445.6	0.2714	0.1573
2009	CDUAF	CANADIAN UTILITIES -CL A	0.1963	789.3	2584	507.3	0.3055	0.0464
2010	CDUAF	CANADIAN UTILITIES -CL A	0.1801	764.6	2657.2	478.5	0.2877	-0.0313

2011	CDUAF	CANADIAN UTILITIES -CL A	0.1654	934	2999	496	0.3114	0.2216
2012	CDUAF	CANADIAN UTILITIES -CL A	0.1787	955	3139	561	0.3042	0.0225
2013	CDUAF	CANADIAN UTILITIES -CL A	0.1736	1083	3381	587	0.3203	0.1340
2014	CDUAF	CANADIAN UTILITIES -CL A	0.1975	1023	3600	711	0.2842	-0.0554
2015	CDUAF	CANADIAN UTILITIES -CL A	0.1078	921	3264	352	0.2822	-0.0997
2016	CDUAF	CANADIAN UTILITIES -CL A	0.1824	1191	3399	620	0.3504	0.2932
2017	CDUAF	CANADIAN UTILITIES -CL A	0.1235	1130	3911	483	0.2889	-0.0512

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.1355	745.75652	2820.2913	384.2173913	0.2669	0.0415
Median	0.1198	651.8	2923.1	352	0.2822	0.0330
StdDev	0.0393	215.39675	638.10132	150.0803804	0.0504	0.0959
Max	0.1975	1191	3911	711	0.3504	0.2932
Min	0.0726	502.5	1674	193.3	0.1617	-0.0997
CV(using average)	0.2897	0.2888299	0.2262537	0.390613189	0.1888	2.3089
E(EBIT) using Median EBIT growth		1167.306				
CV(using E(EBIT))		0.184525				

1995	EMRAF	EMERA INC	0.1568	227.5	711.7	111.6	0.3197	
1996	EMRAF	EMERA INC	0.1418	244	730.6	103.6	0.3340	0.0725
1997	EMRAF	EMERA INC	0.1378	245.3	741.4	102.2	0.3309	0.0053
1998	EMRAF	EMERA INC	0.1287	232.6	750.8	96.6	0.3098	-0.0518
1999	EMRAF	EMERA INC	0.1271	210.1	790.2	100.4	0.2659	-0.0967
2000	EMRAF	EMERA INC	0.1177	242	887.1	104.4	0.2728	0.1518
2001	EMRAF	EMERA INC	0.1158	251.8	986.3	114.2	0.2553	0.0405
2002	EMRAF	EMERA INC	0.0696	225.8	1201.5	83.6	0.1879	-0.1033
2003	EMRAF	EMERA INC	0.1075	318.4	1201.8	129.2	0.2649	0.4101
2004	EMRAF	EMERA INC	0.1097	299.5	1183.5	129.8	0.2531	-0.0594
2005	EMRAF	EMERA INC	0.1076	246.3	1125.9	121.2	0.2188	-0.1776
2006	EMRAF	EMERA INC	0.1111	312.7	1132	125.8	0.2762	0.2696
2007	EMRAF	EMERA INC	0.1192	282	1269.5	151.3	0.2221	-0.0982
2008	EMRAF	EMERA INC	0.1125	259.7	1280.8	144.1	0.2028	-0.0791
2009	EMRAF	EMERA INC	0.1274	259.8	1378.7	175.7	0.1884	0.0004
2010	EMRAF	EMERA INC	0.1352	216.3	1436.1	194.2	0.1506	-0.1674
2011	EMRAF	EMERA INC	0.1200	318.1	2064.4	247.7	0.1541	0.4706
2012	EMRAF	EMERA INC	0.1126	346.5	2058.6	231.9	0.1683	0.0893
2013	EMRAF	EMERA INC	0.1062	407.1	2230.2	236.8	0.1825	0.1749
2014	EMRAF	EMERA INC	0.1457	667.3	2971.9	432.9	0.2245	0.6392
2015	EMRAF	EMERA INC	0.1533	567.1	2789.3	427.5	0.2033	-0.1502
2016	EMRAF	EMERA INC	0.0595	674	4287	255	0.1572	0.1885
2017	EMRAF	EMERA INC	0.0472	1391	6226	294	0.2234	1.0638

	ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
Average	0.1161	367.16957	1714.5783	178.8565217	0.2333	0.1179
Median	0.1177	259.8	1201.8	129.8	0.2234	0.0229
StdDev	0.0272	260.74668	1317.7643	99.39250853	0.0570	0.3028

		Max	0.1568	1391	6226	432.9	0.3340	1.0638
		Min	0.0472	210.1	711.7	83.6	0.1506	-0.1776
		CV(using average)	0.2344	0.7101533	0.7685647	0.555710843	0.2442	2.5690
		E(EBIT) using Median EBIT growth		1422.8704				
		CV(using E(EBIT))		0.183254				
1995	ENB	ENBRIDGE INC	0.0561	462.5	2322.8	130.4	0.1991	
1996	ENB	ENBRIDGE INC	0.0734	580.3	2457.9	180.3	0.2361	0.2547
1997	ENB	ENBRIDGE INC	0.0862	571.2	2520	217.3	0.2267	-0.0157
1998	ENB	ENBRIDGE INC	0.1029	492.7	2341.7	240.9	0.2104	-0.1374
1999	ENB	ENBRIDGE INC	0.1115	579.2	2687.7	299.8	0.2155	0.1756
2000	ENB	ENBRIDGE INC	0.1407	654.7	2945	414.5	0.2223	0.1304
2001	ENB	ENBRIDGE INC	0.1192	715.7	4050.1	482.9	0.1767	0.0932
2002	ENB	ENBRIDGE INC	0.1342	731.5	4547.5	610.1	0.1609	0.0221
2003	ENB	ENBRIDGE INC	0.1443	891.4	4855.3	700.8	0.1836	0.2186
2004	ENB	ENBRIDGE INC	0.0997	1083.5	6540.5	652.2	0.1657	0.2155
2005	ENB	ENBRIDGE INC	0.0666	1091.8	8453.1	562.9	0.1292	0.0077
2006	ENB	ENBRIDGE INC	0.0585	1148.3	10644.5	622.3	0.1079	0.0517
2007	ENB	ENBRIDGE INC	0.0593	1149.3	11919.4	707.1	0.0964	0.0009
2008	ENB	ENBRIDGE INC	0.0823	1368.7	16131.3	1327.7	0.0848	0.1909
2009	ENB	ENBRIDGE INC	0.1253	1261	12466	1562	0.1012	-0.0787
2010	ENB	ENBRIDGE INC	0.0641	1506	15127	970	0.0996	0.1943
2011	ENB	ENBRIDGE INC	0.0517	1891	19402	1004	0.0975	0.2556
2012	ENB	ENBRIDGE INC	0.0283	1512	25306	715	0.0597	-0.2004
2013	ENB	ENBRIDGE INC	0.0191	1365	32918	629	0.0415	-0.0972
2014	ENB	ENBRIDGE INC	0.0373	3200	37641	1405	0.0850	1.3443
2015	ENB	ENBRIDGE INC	0.0074	2302	33794	251	0.0681	-0.2806
2016	ENB	ENBRIDGE INC	0.0599	3957	34560	2069	0.1145	0.7189
2017	ENB	ENBRIDGE INC	0.0644	6316	44378	2859	0.1423	0.5962
			ROE	EBIT	REVT	Net Income (Loss)	EBIT/Sales	EBIT Growth
		Average	0.0779	1514.3826	14696.035	809.2695652	0.1402	0.1664
		Median	0.0666	1148.3	10644.5	629	0.1292	0.1118
		StdDev	0.0388	1357.298	13432.656	661.5904964	0.0596	0.3507
		Max	0.1443	6316	44378	2859	0.2361	1.3443
		Min	0.0074	462.5	2322.8	130.4	0.0415	-0.2806
		CV(using average)	0.4974	0.8962715	0.9140327	0.817515603	0.4249	2.1077
		E(EBIT) using Median EBIT growth		7021.8909				
		CV(using E(EBIT))		0.193295				

NOT USED - Missing Info from 2012-2017

1995	VNRCF	VALENER INC	0.1191	228.498	1133.496	135.008	0.2016
1996	VNRCF	VALENER INC	0.1269	241.517	1149.546	145.828	0.2101
1997	VNRCF	VALENER INC	0.1151	224.963	1205.384	138.707	0.1866
1998	VNRCF	VALENER INC	0.1122	220.826	1254.833	140.746	0.1760
1999	VNRCF	VALENER INC	0.1014	226.265	1339.022	135.772	0.1690
2000	VNRCF	VALENER INC	0.0880	236.52	1633.736	143.722	0.1448
2001	VNRCF	VALENER INC	0.0682	242.45	2068.346	141.164	0.1172
2002	VNRCF	VALENER INC	0.0961	243.992	1607.7	154.58	0.1518
2003	VNRCF	VALENER INC	0.0873	243.324	1756.537	153.327	0.1385
2004	VNRCF	VALENER INC	0.0900	242.996	1782.934	160.377	0.1363
2005	VNRCF	VALENER INC	0.0854	243.698	1808.201	154.445	0.1348
2006	VNRCF	VALENER INC	0.0735	231.727	2003.766	147.207	0.1156
2007	VNRCF	VALENER INC	0.0628	247.579	1957.469	122.841	0.1265
2008	VNRCF	VALENER INC	0.0711	255.037	2171.919	154.439	0.1174
2009	VNRCF	VALENER INC	0.0704	266.383	2250.433	158.452	0.1184
2010	VNRCF	VALENER INC	0.0885	249.725	2018.137	178.683	0.1237
2011	VNRCF	VALENER INC	#DIV/0!	-2.42	0	30.337	#DIV/0!
2012	VNRCF	VALENER INC	#DIV/0!	-2.007	0	29.567	#DIV/0!
2013	VNRCF	VALENER INC	#DIV/0!	-2.1	0	41.452	#DIV/0!
2014	VNRCF	VALENER INC	#DIV/0!	-2.524	0	40.992	#DIV/0!
2015	VNRCF	VALENER INC	#DIV/0!	-2.128	0	47.147	#DIV/0!
2016	VNRCF	VALENER INC	#DIV/0!	-2.091	0	66.499	#DIV/0!
2017	VNRCF	VALENER INC	#DIV/0!	-2.125	0	57.408	#DIV/0!

Exhibit 10 - Data and Calculations for Table 10

TABLE 11 - DBRS Ratings and Credit Metrics

<u>Canadian Regulated Utilities</u>	<u>Date</u>	<u>Issuer Rating</u>	<u>Total Debt to Capital (%)</u>	<u>CF/Debt (%)</u>	<u>EBIT Interest Coverage</u>
1. CU Inc.	Jul-18	A (high)	61.6	17.8	3.32
	Jul-17	A(high)	61.4	15.4	2.94
2. Enbridge Gas Distribution Inc.	Sep-17	A	58	14.2	2.54
3. ENMAX Power Corp.	May-18	A(low)	45.1	17.1	2.22
	May-17	A(low)	42	21.7	2.97
4. EPCOR Distribution Inc.	Sep-17	A(low)	43.4	19.6	2.87
5. FortisAlberta Inc.	Nov-17	A (low)	60.5	15.3	2.24
6. FortisBC Inc.	Jul-18	A (low)	59.4	13.8	2.58
	Jun-17	A	59.2	13.1	2.01
7. Hydro One Inc.	Apr-18	A(high)	55.6	13.2	2.65
	Apr-17	A(high)	57.3	13.6	2.77
8. Hydro-Quebec	Jul-18	A(high)	66.6	12.1	2.15
	Jun-17	A(high)	67.5	11.5	2.11
9. Nova Scotia Power Inc.*	Jan-18	A(low)	62.9	18.9	2.21
	Dec-16	A(low)	62.4	17.5	2.15
10. Saskatchewan Power	Nov-17	AA	75.2	8.9	1.49
Newfoundland Power	Sep-17	A	54.3	18.8	3.07
2017 Average			58.69	15.08	2.41
2017 Median			59.85	14.75	2.39
2017 Average (excl. ENMAX, EPCOR, Hydro-Quebec and Saskatchewan Power)			59.80	14.85	2.44
2017 Median (excl. ENMAX, EPCOR, Hydro-Quebec and Saskatchewan Power)			59.85	14.75	2.39
2018 Average			58.53	15.48	2.52
2018 Median			60.50	15.45	2.40

2018 Average (excl. ENMAX, EPCOR, Hydro-Quebec and Saskathchewan Power)	59.88	15.93	2.69
2018 Median (excl. ENMAX, EPCOR, Hydro-Quebec and Saskathchewan Power)	60.50	15.80	2.62

***Include NSPC Dec 2016 metrics in 2017 average and median**

Exhibit 11 - Data and Calculations for Table 12

TABLE 12 Calculations - NP Earned versus Allowed ROEs

<u>Year</u>	<u>Approved ROE (%)</u>	<u>Earned ROE (%)</u>	<u>Difference (%)</u>
1990	13.95	13.71	-0.24
1991	13.95	13.29	-0.66
1992	13.25	13.47	0.22
1993	13.25	12.79	-0.46
1994	13.25	12.03	-1.22
1995	13.25	12.07	-1.18
1996	11	11.21	0.21
1997	11	11.14	0.14
1998	9.25	9.58	0.33
1999	9.25	9.81	0.56
2000	9.59	10.8	1.21
2001	9.59	11.35	1.76
2002	9.05	10.65	1.6
2003	9.75	10.22	0.47
2004	9.75	10.12	0.37
2005	9.24	9.6	0.36
2006	9.24	9.46	0.22
2007	8.6	8.66	0.06
2008	8.95	9.13	0.18
2009	8.95	8.96	0.01
2010	9	9.21	0.21
2011	8.38	9	0.62
2012	8.8	8.98	0.18
2013	8.8	9.16	0.36
2014	8.8	9.15	0.35
2015	8.8	8.98	0.18
2016	8.5	8.9	0.4
2017	8.5	8.93	0.43
	<u>Approved ROE (%)</u>	<u>Earned ROE (%)</u>	<u>Difference (%)</u>
Average	10.13	10.37	0.24
Median	9.25	9.71	0.22
Average (since 1996)	9.22	9.68	0.46
Median (since 1996)	9.03	9.34	0.36

NP	1995-2017	
	ROE Allowed	Earned ROE
Average	9.39	9.79
Median	9.05	9.46
StdDev	1.08	0.97

Max	13.25	12.07
Min	8.38	8.66
CV(ROE)	0.115	0.099

NORTH AMERICAN UTILITIES: STILL A SMART BET FOR THE NEW GRID

NEW OLIVER WYMAN ANALYSIS FINDS A SOLID FOUNDATION FOR EARNINGS GROWTH EVEN WITH COMING CHANGES



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The warnings of competitive threats to the US utility industry have sounded as the new smart electric network begins to evolve and develop and new distributed solar and wind generation finds traction in the market.

The threats are real, but a new analysis from Oliver Wyman suggests that utilities have a solid foundation to participate, grow, and deliver strong investor returns in the North American market.

Many recent analyses focus on the bleak outlook and dire consequences that the competitive dynamics of the new smart electric grid will have on utilities, especially electric utilities. Our new analysis evaluates and focuses on the strong foundation that utilities have, especially with future rate base and earnings growth, to be successful in the energy market. During the next 15 years, Oliver Wyman expects utility earnings will grow 3% to 4% annually, with upside if utilities change smartly in the face of the new competition. The smart grid can enable utilities to thrive, not wither.

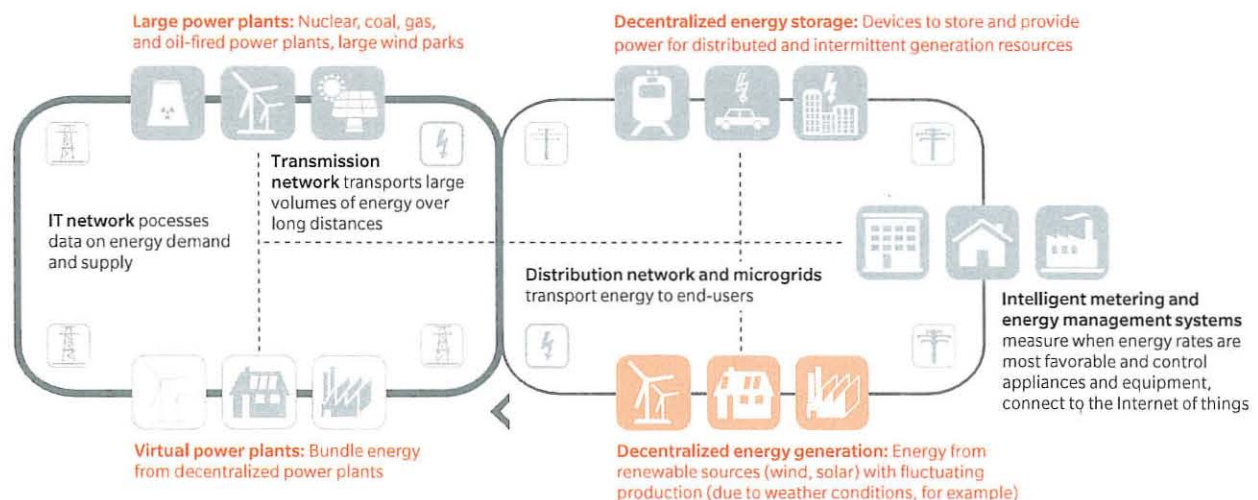
Change in the utility business is inevitable, and key customer segments will demand greater control and choice over their energy decisions. Customer demand and technological innovation will create sizable profit pools and invite new entrants and stronger competition.

However, the North American utility model works well for most customers, regulators, and investors. To continue their strong performance, utilities will need to alter their business models. In the future, utilities can lead and achieve stellar financial results. As long as they meet changing customer needs while helping shape regulations, there is good reason to believe that utilities can prosper while capitalizing on opportunities.

1. THE NETWORK: THE NORTH AMERICAN SMART GRID OPENS OPPORTUNITIES FOR MANY

Oliver Wyman believes that the traditional centralized grid will remain relevant, but decentralized energy resources, as their economics improve, will be the new building blocks in the industry. With the new grid, consumers will have more control and more choices. Consumers can monitor, analyze, and adjust usage based on the information at hand. They will be able to choose a range of distributed generation resources – and not just solar – thanks to innovative energy storage technologies. The old grid and centralized resources will still be around, but new technologies will proliferate (Exhibit 1).

Exhibit 1: Electric network of the future



Source: Oliver Wyman analysis

2. ENERGY CUSTOMERS: WHAT CHANGES DO THEY REALLY WANT?

Customers, not ratepayers, rule markets, even in the utility business. Clearly, some customer segments in North America will demand greater control and choice over their energy decisions. Today, there is a lot of rhetoric about the power of the new grid, usually from energy market entrants who want to encourage purchasing or financing to build their businesses. In North America, one has to be careful to not over-hype the new grid, at least in the short term.

Consumer marketers targeting North America have long considered utilities – electricity, natural gas, and water – to represent low involvement categories of consumer spending. Simply put, consumers want these basic services always there when they need them at a reasonable price. Most consumers spend little time fretting over their utility. There are much more important things to spend their time and effort on, like housing, vacations, cars, mobile phones, clothing, and other higher involvement categories of consumer spending. Energy's place in the pecking order dampens demand for change and innovation.

Additionally, utility costs represent a tiny percentage of a consumer's income. In 2013, consumer spending for electricity, natural gas, and other fuels represented only about 3% of a consumer's before-tax income.

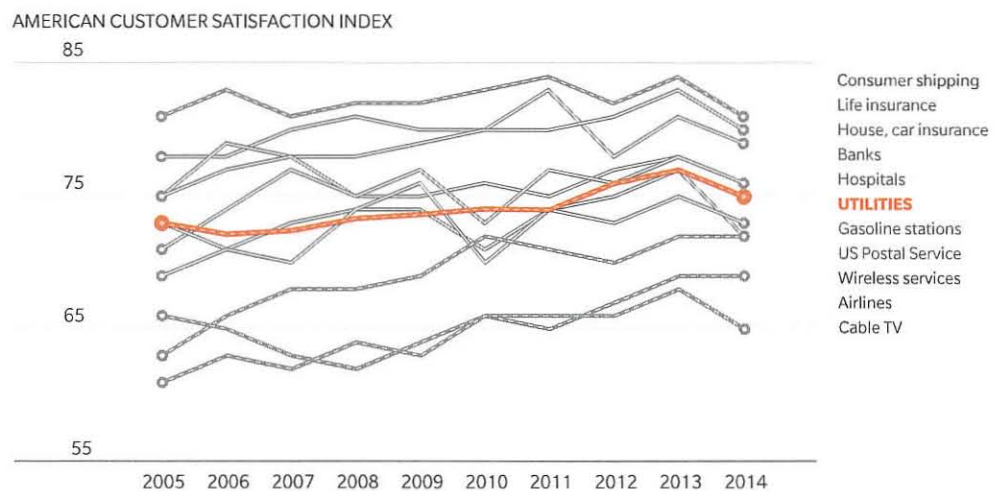
There may be a sizable segment of the North American consumer market that will become highly engaged in energy decisions – at minimum 10%, perhaps 25%, or maybe more. However, the overall tone of segmentation studies is that most North American consumers expect cost savings in order to change their behavior. Particularly noteworthy: There is small interest in changing energy behavior in a big way for environmental reasons. In a nutshell, many consumers say, *"If I can achieve savings with no hassles, by all means sign me up! Show me the money, but do not put me through hoops or expose me to risks I do not understand to cut my bill."*

So how about future cost savings in energy spending? According to Oliver Wyman's work with the World Energy Council for its World Energy Trilemma report, the US continues to be the top-ranked country in "energy equity" since the rankings began in 2010. Utility-related services in the US are cheap and accessible to the entire population compared to the rest of the world. In a low involvement category, cheap and accessible is not a significant call to action for most consumers.

How about the future? At least for the near term, North America has bountiful supplies of energy, especially driven by the shale gas revolution. Real electricity prices to residential consumers should rise minimally, maybe less than 0.5% per year over the next 15 years. Furthermore, North Americans have a range of energy-efficiency programs already in place or planned over the next few years. Total residential energy use most likely will remain flat and may even drop. Therefore, the overall energy bill, which is what consumers are really concerned about, should not change much, especially relative to other categories of spending. The energy bill may actually fall when considering real income growth. Again, a flat bill suggests there may be limited opportunities for cost savings, dampening consumer interest in change.

Past utility customer satisfaction ratings echo the overall place of utilities in the North American consumer marketplace. According to the American Customer Satisfaction Index (Exhibit 2), utilities have ranked right in the middle of the pack across service categories in the US over the last decade. Residential consumers find utility service generally acceptable compared to other services. Note the ranges of performance, both good and bad, across higher involvement categories – package shipping (FedEx, UPS) representing the good, and airlines and cable TV representing the bad. In addition, consumer satisfaction with wireless services has increased significantly over the period due to heightened consumer interest and the growth of smart phones. A warning to utilities as innovation and the grid develop? Yes, you better believe it, but perhaps at a lower decibel than higher involvement categories.

Exhibit 2: US customer satisfaction with services



3. THE NEWCOMERS: MULTIPLE BREEDS OF COMPETITORS EMERGE BUT WILL THEIR BUSINESS MODELS WORK?

There is no doubt that the new grid will unleash a wave of innovation and entrants into the market for utility services. North America already has a plethora of new publicly traded companies in residential solar, distributed generation, battery storage, energy services of various shapes, natural gas vehicles, and wind, bio, ocean, and other fuel sources. Workers in offices and labs from Massachusetts to Texas to the Silicon Valley work tirelessly to prep the next wave of energy IPOs. Do they represent competitors for utilities? Absolutely. However, the competitive threat from these entrants is difficult to ascertain. According to Value Line, the more than 30 new entrants it covers that have a focus on North America collectively generated about \$20 BN in sales in both 2013 and 2014. However, these entrants were generally unprofitable. The median after-tax income margin for these companies was -1.3% in 2013, which worsened to -5.5% in 2014. Half had negative cash flow. Do not even ask about return on equity or capital employed. Looking ahead, analysts expect 60%

to remain unprofitable over the coming years. In contrast, in 2014, the average after-tax operating margin of a utility was 7.5%, the average return on equity was 8.1%, and each and every utility was profitable. Utility operating activities provided over \$88 BN of cash that was used to pay more than \$21 BN in dividends to investors.

Many of the entrants have not figured out a business model that works. They are still formulating their target customers, developing their product and service offers, understanding how to become profitable and sustain performance, and building their operating models. It is difficult to envision many of these companies offering continued cost savings to consumers. Burning through cash is plainly not sustainable. Of course, many will not succeed and just fade away or be gobbled up by others.

Excluded from the above analysis are those relatively new publicly traded energy companies that develop large-scale wind and solar projects and sell the capacity and output to utilities under profitable long-term contracts. In general, investors view these companies positively because of their steady long-term cash flows and the creditworthiness of the counterparties (e.g. the utility). The current utility model works very well for this type of entrant.

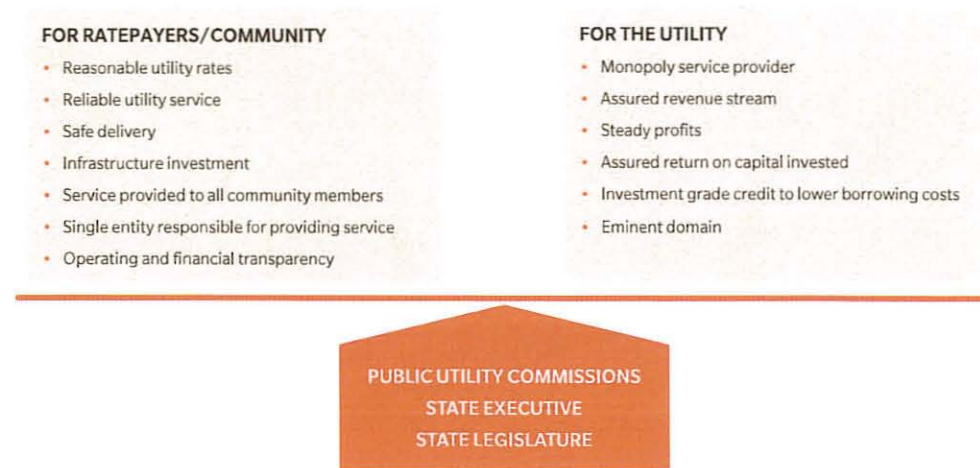
Of course, an 800-pound gorilla could emerge from the pack. The favorite is not clear and may not be clear until much later, say 2040 or beyond. Google's acquisition of Nest in 2013 certainly created a stir in the energy industry. However, Google's acquisition and positioning may be more about developing the connected home and the larger Internet of things rather than the energy market. There is no doubt that Google represents a strong future competitor. In announcing the Nest deal, Google highlighted the shared values of the two companies with "both of us [believing] that technology should be doing the hard work so that people can get on with their lives and do great things." If Google or another company should figure it out on energy, this is an ominous competitive threat even for utilities in a low involvement sector where most customers are already getting on with their lives. Replacement of utilities by a Google is a scary long-term value proposition.

4. THE MOST IMPORTANT STAKEHOLDER: REGULATORS AND REGULATIONS WILL OF COURSE ADJUST BUT THE UTILITY FRAMEWORK ENDURES

Changing customer demands? New entrants and competitors? This much is certain: The states – governors, legislatures, and especially the state public utility commissions – and the federal government will step in.

While we see regulatory change as inevitable, we doubt there will be fundamental change in the utility operating model. The regulatory compact (see Exhibit 3) will continue. In return for monopoly franchise rights and cost recovery, the utility's obligation to serve and its obligation to the community will continue. The utility model will still be front and center in providing safe, reliable, and reasonably priced service to customers.

Exhibit 3: The US utility regulatory compact



Will regulatory change occur? Absolutely. How might these changes evolve? Current regulatory proceedings provide some hints that utilities will still play crucial roles.

- New York's Reforming the Energy Vision proceeding clearly outlines the utility's role as the distribution provider but limits utility ownership in distributed energy resources markets. However, the door is open even in a challenging regulatory state such as New York for large utility investment in the grid, utility use of data and information to improve service, and even third-party utility ownership of utility-scale renewables.
- Massachusetts' grid modernization plans suggest continued utility involvement in reducing outages, optimizing peak demand, integrating distributed resources, and improving workforce and asset management.
- California's grid modernization proceedings place the utility at the forefront in developing and implementing distribution resource plans.

Different states have different views of the utility of the future, depending upon the state or region-specific generation and policy mix. Consequently, there is no standard operating model across the US, leaving the states to experiment with various frameworks (see Exhibit 4).

US utility commissions are increasingly grappling with cross-subsidization as they take up proposed changes to rate design. Although specifics of rate design plans vary from state to state, the proposals all attempt to make monthly utility bills less sensitive to volumetric changes.

But PUCs and state governments clearly recognize that the US utility model delivers world-class service.

Equity and bond investors are happy with this business model, too. Steady, stable financial returns lead to robust debt coverage ratios and superior bond ratings. Stable, growing profits lead to safe and consistently rising dividends. Is there huge upside? Probably not. But many private investors and infrastructure funds would gladly add a utility to their investment

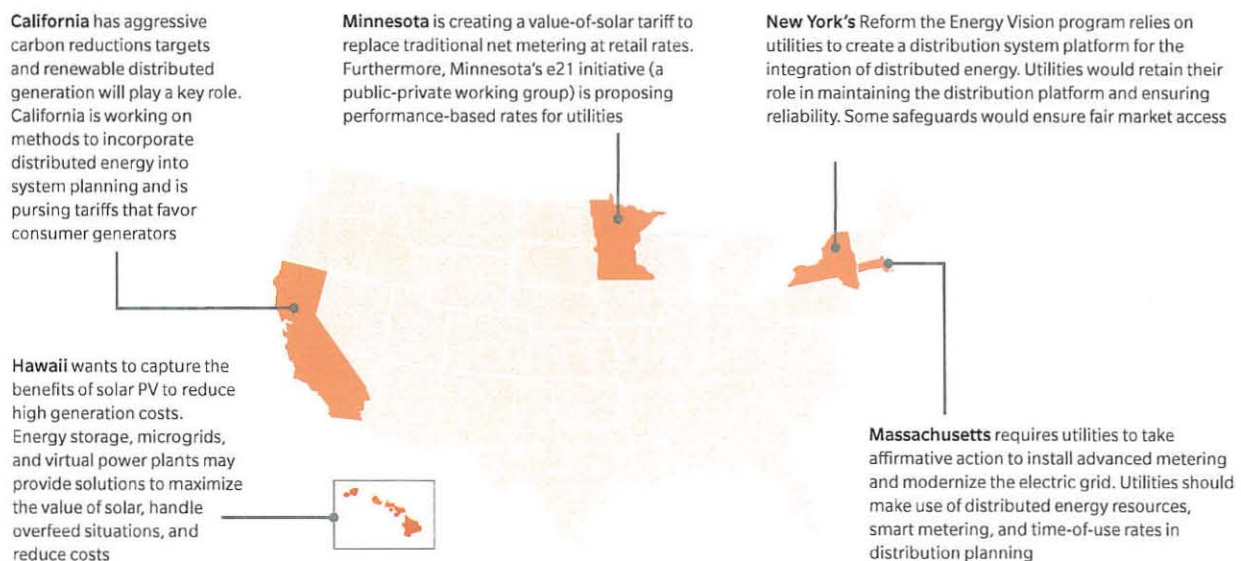
portfolios if they could buy one. Billionaire investor Warren Buffet likes utilities a lot. Demand outstrips supply. The high multiples that utilities are paying to acquire other utilities suggest that they, too, know a good thing when they see it.

Rating agencies and stock analysts know the deal that is the regulatory compact. Stable and sufficient cash flow is king and that's the typical utility business model.

- **From Moody's:** "Our stable outlook for the US regulated utility industry is based on our expectation that regulatory support will continue to help utilities recover costs and maintain stable cash flow, even with competition from distributed generation or energy-efficiency efforts that keep overall demand growth low."
- **From S&P:** "Our fundamental view of the sector is a stable one, supported by the essential nature of the services provided, making the companies somewhat insensitive to economic fluctuations; the rate-regulated nature of the business, which lends a measure of stability and predictability to cash flow generation; and the generally supportive posture of regulators toward cost recovery of incremental investments facilitated by the ongoing low power prices."
- **From Warren Buffet:** "Our utility subsidiary is one of our 'Powerhouse Five' [of major lines of business. ... [A] key characteristic is [its] huge investment in very long-lived, regulated assets. ... Factors ensure the [utility's] ability to service its debt under all circumstances ... [and] recession-resistant earnings, which results from these companies exclusively offering an essential service. ... Our confidence is justified ... by the knowledge that society will forever need massive investments in ... energy. It is in the self-interest of governments to treat capital providers in a manner that will ensure the continued flow of funds to essential projects. It is meanwhile in our self-interest to conduct our operations in a way that earns the approval of our regulators and the people they represent."

Exhibit 4: Shaping the future utility operating model

SELECTED EXAMPLES OF REGULATORY PERSPECTIVES



- But of course there are elements of risk. **From Barclay's:** *"Valuations suggest credit investors are depending on the 'regulatory compact' (whereby the monopoly utility agrees to invest in assets to service customers in return for prices that are set to allow them a reasonable return) to give sufficient protection from industry changes. While the regulator/utility construct has usually resulted in low-risk returns to credit in the past, technological change creates precisely the environment where slower-moving incumbents and their regulators can fall behind the curve, risking credit volatility, or disrupt the regulatory compact, possibly leading to unexpected losses for bondholders."*

Are there future risks to the utility business model? Of course. But overall, the utility business is a good business.

5. THE GROWTH CHALLENGE: THE NEXT 15 YEARS

What do all the opportunities, threats, and changes mean, especially for North American utilities? Oliver Wyman's new analysis and forecast for utility earnings growth suggests utilities have a strong foundation for success over the next 15 years: long-term earnings for utilities should grow at least 3% per year. This represents a solid starting point for competing in the world of the new grid.

Our new analysis and forecast are built on our worldwide work for and support of the World Energy Council and our consulting work in the North American markets.

A number of factors shape our forecast for utility earnings.

- **Electric distribution:** continuing significant and increasing investment in electric distribution to replace aging infrastructure, to build the network of the future, and to accommodate distributed resources.
- **Electric transmission:** tapering but steady investment in new transmission as the near-term build-out is completed and more distributed resources hit the market.
- **Generation:** continuing utility investment in a portfolio of generation resources (in states where utilities can invest in generation), offset with a significant increase of predominantly non-utility investment in distributed resources.

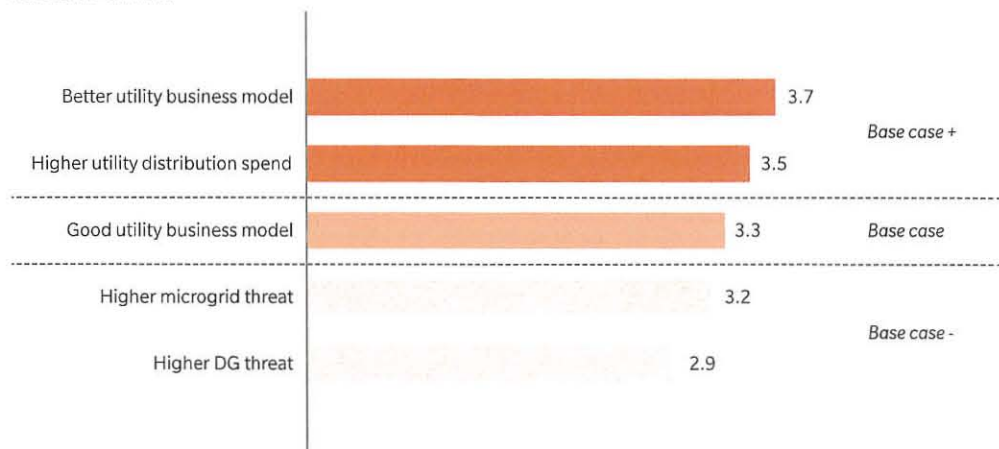
As the US Environmental Protection Agency works to decarbonize the energy sector, the Clean Power Plan presents a huge growth opportunity for many utilities. Hundreds of gigawatts of new natural gas and renewable generation along with new transmission will be needed to comply with the regulations.

- **Gas transmission and distribution:** for the utilities that also have gas business, a doubling of spending for gas distribution and transmission to enable ample and price-competitive gas to reach end-users, including power generators.

What does it all mean for utility earnings? Well, it is not all that bad. **Oliver Wyman's most likely market scenario suggests that utility earnings will grow on average about 3.3% annually during the next 15 years.** That's not bad a starting point at all – not superb but not a death spiral either.

Exhibit 5: New Oliver Wyman forecast: US utility earnings growth

2014–2030
PERCENT PER YEAR



Sure, there is downside, but the customer, regulatory, and competitive factors tend to mitigate any chance of free fall.

- **More distributed resources:** A higher penetration of non-utility resources negatively impacts utility profitability. A tripling of the penetration over our base case assumptions lowers earnings growth to under 3% per year.
- **More non-utility microgrids:** A small but significant increase in non-utility investment through microgrids has less of a negative impact. Our forecast suggests that higher non-utility distribution investment, predominantly in microgrids, will slow utility earnings growth marginally, by only 0.1% annually to 3.2%.

It is hard to get excited about 3% per year earnings growth – yes, a secure and growing dividend helps. And certainly Oliver Wyman’s analysis suggests that earnings growth will be less than the 4% to 6% range that many utilities have touted and delivered during the recent period of exemplary utility stock performance.

So where does a utility CEO look for higher earnings growth?

Many believe that our aging utility infrastructure needs even more investment to continue the high levels of service that we enjoy. Investing an additional 20% in electrical distribution will drive the growth rate to 3.5%. Want more? Shaping the regulatory environment to allow the utilities to participate and invest in the majority of distributed resources, either as part of rate base or as non-regulated activities, might add 10 or 20 basis points, to top out at 3.7% annually.

Utilities will continue to be a solid business, but not the growth engine that they have been recently. Is Oliver Wyman being boring in its estimates? We do not think so: Our belief is that this forecast represents the new reality for utilities. Where is the catastrophic death spiral? We do not believe there will be one. The cry for change is too weak and the fundamental utility business model is too strong in North America.

Our bottom line: We would still hold.

6. ON THE PATH TO HIGHER UTILITY EXECUTIVE COMPENSATION: EXPECTATIONS FOR THE UTILITY OF THE FUTURE

So what is a utility leadership team to do? Certainly there will be challenges: changing customer expectations, the threat of new entrants, the need to shape and set the regulatory agenda – the list goes on and on. The biggest challenge? It is meeting Wall Street's expectations of continued 4% to 6% annual earnings growth.

There is a solid list of levers for utility leaders to think about pulling now and hard:

- **Undertake solid strategic and business planning now:** Undoubtedly, the energy business holds great unknowns, uncertainties, and risks. Despite its detractors, utilities can pave the way for success with strategic planning. Good planning examines opportunities, business design, and profit models focusing on the new grid, distributed resources, microgrids, energy storage, and other initiatives. Good planning can still result in bad outcomes. Therefore, a clear focus and commitment from strategic planning to implementation and communication is more likely to increase earnings.
- **Become customer-centric:** Our research suggests that utilities that deliver exemplary customer service earn 50 to 100 basis points more than those that are less customer-focused. Happy customers lead to more responsive, flexible regulators, which lead to greater opportunities to achieve higher earnings. Yes, focusing on the customer works even in the utility industry! Let's be honest: Customer experience data suggest that utilities are average at best. The world is changing: We are transitioning from an institutional era to a more human era. It is the end of putting the company first, speaking from a script and talking at customers. Customers want to buy from companies that show empathy, have conversations with them, and engage them at eye level. And consumers want these behaviors even from their utility. Consumers will be even more open to leaving the utility if new entrants get with the program first (hello distributed resources).
- **Use natural gas expansion as a customer-centric lever:** The US will be awash in natural gas for a good while. Many utilities also have a natural gas distribution business. What better time to make it unbelievably easy for utility customers to convert or expand their use of natural gas? Low oil prices and more modest conversion demand provide a great time to get the basics right. This will set the stage for utilities to act when oil prices inevitably rise again. Utilities need to build relationships with the community in target areas, hone their segmentation skills, develop their marketing and communication capabilities, get the proper regulatory rules in place, and align their operations for swift response to customers. If customers call to convert, utilities need to deliver new gas service, following the model of Amazon and other leading retailers.

- **Position for increased electric T&D investment:** Core future earnings may be lower than what Wall Street demands. The infrastructure is more than aging. Utilities must set the customer and regulatory stage to accelerate investment in the future. It is crucial that they act now to ensure a customer price path through operational and capital efficiency that will support more investment later.
- **Take the regulatory initiative – position to dominate, not just stay in the game:** Utilities have delivered big time to their customers and regulators. They need to tell their story! Regale the listener with facts about how great utility service is and how low utility bills really are. Continue to position the utility as the linchpin of the future. Be a leader with the state executive branch, the legislature, and big-city mayors. Position the utility to sit at the head of the table, not just to have a seat.
- **Develop a fresh approach to non-regulated activities and business models:** The last round of energy retail and wholesale deregulation went down in flames, capped off with the Enron fiasco. Utility after utility went back to basics, focused on regulated operations. The trend is continuing (see PPL, Duke, NiSource, etc.). If non-regulated earnings growth is needed, do not repeat the mistakes of the mid-1990s to early 2000s. Think differently and smartly. It is hard to compete with new entrants that do not make any money. Obtain enabling regulation. No copycats allowed: avoid embracing non-regulated initiatives if you do not have a snowball's chance to execute them effectively and profitably.
- **Focus on cost management to better earn allowed returns:** Look within first. The average utility does not earn its allowed return on equity. In 2014, the average return on equity was 8.1%. To earn their allowed returns, utilities need to reduce non-fuel operating and maintenance expenses about 10% annually. In general, most utilities could stand to improve their management performance. A 10% expense reduction is difficult to achieve and sustain but certainly would go a long way to improve future earnings. For many utilities, trying to hold expenses flat represents a good first step. The future business environment may require more.
- **Reconsider M&A, especially small acquisitions:** Future utility earnings (~3% +/- per year) may be lower than recent performance and less than future market expectations. Slow underlying demand growth plus lower-than-expected earnings strongly suggest further industry consolidation. We still have a lot of utilities in the US. Management teams will need to double down on acquisitions to fuel growth. Sure, go after the big ones if you can make the management, social issues and regulatory barriers work. But do not forget smaller acquisitions: There are more than 200 small utilities with \$30 BN of rate base and \$1.3 BN of annual earnings. Small may be beautiful, too!

Based on our experience, Oliver Wyman believes that utilities are a smart bet for the new grid. Our new analysis suggests that utilities will have a strong earnings platform, especially for the near term. Though it will be challenging, pulling the right management levers smartly should lead to outstanding financial performance. However, there may be real customer, competitive, or technological game changers out there that we – along with others – are clueless about now. We don't know the next Apple or Google or even Uber that will hit and stick in the energy business. Good utility management provides the best chance to change and succeed.

ABOUT OLIVER WYMAN

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialised expertise in strategy, operations, risk management, and organisation transformation.

Oliver Wyman's energy practice helps companies address strategic and operational challenges through proven, results-oriented approaches across all sectors of the market. The practice bases its on deep industry expertise across the energy sector, informed by decades of work with industry leaders. The energy team has worked with leading international and domestic oil and gas companies operating in the Americas, Europe, Asia, Africa, and the Middle East.

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